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Setting Default Price-Quality Paths for Suppliers of Gas Pipeline Services

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Executive Summary

X1 This paper explains the default price-quality paths that we have set for suppliers of gas pipeline services. Each path will apply from 1 July 2013 to 30 September 2017.

Price-quality regulation of gas pipeline services

X2 Under Part 4 of the Commerce Act 1986 ('the Act'), we are required to regulate the transportation of gas by pipeline. The 'gas pipeline services' that we regulate are supplied in markets in which there is little or no competition, and where there is little or no likelihood of a substantial increase in competition.

X3 As required under the Act, we have determined a 'default price-quality path' for each supplier listed in Table X1. Each path specifies maximum price or revenue, and minimum quality standards, that each supplier must comply with during the regulatory period 1 July 2013 to 30 September 2017.

Table X1 List of suppliers that provide gas pipeline services

Gas distribution businesses	Gas transmission businesses
GasNet Limited (GasNet)	Maui Development Limited (MDL)
Powerco Limited (Powerco)	Vector Limited (Vector Transmission)
Vector Limited (Vector Distribution)	

X4 During the regulatory period, we will regularly assess whether each supplier is complying with their default price-quality path. Each 'assessment period' usually ends on the same date as the supplier's pricing year, ie, 30 June for MDL, and 30 September for all other suppliers.

Maximum price or revenue and minimum quality standards

X5 The new limits on price or revenue are intended to promote the long-term benefit of consumers, by promoting outcomes that are consistent with those produced in competitive markets. Importantly, profits will rise if costs are reduced, and fall if costs are not controlled. This incentive should lead to improvements in efficiency.

X6 Quality standards are important too, because they mitigate the risk that suppliers will cut their costs by compromising quality. Suppliers will therefore be more likely to provide services at a quality that reflects consumer demands.

New limits on each supplier's maximum price or revenue

X7 Whether a supplier is subject to a limit on their maximum price or revenue depends on the type of service that they provide.

X7.1 Suppliers of gas distribution services will be subject to a limit on their maximum price ('price cap').

X7.2 Suppliers of gas transmission services will be subject to a limit on their maximum revenue ('revenue cap').

X8 In the first assessment period, we have set each supplier's starting price or revenue in the expectation that they will earn the amounts shown in Table X2, prior to the recovery of 'pass-through costs' and 'recoverable costs'. Both of these cost categories capture spending that suppliers have little or no control over, eg, local rates. These costs can be recovered over and above the amounts shown below.

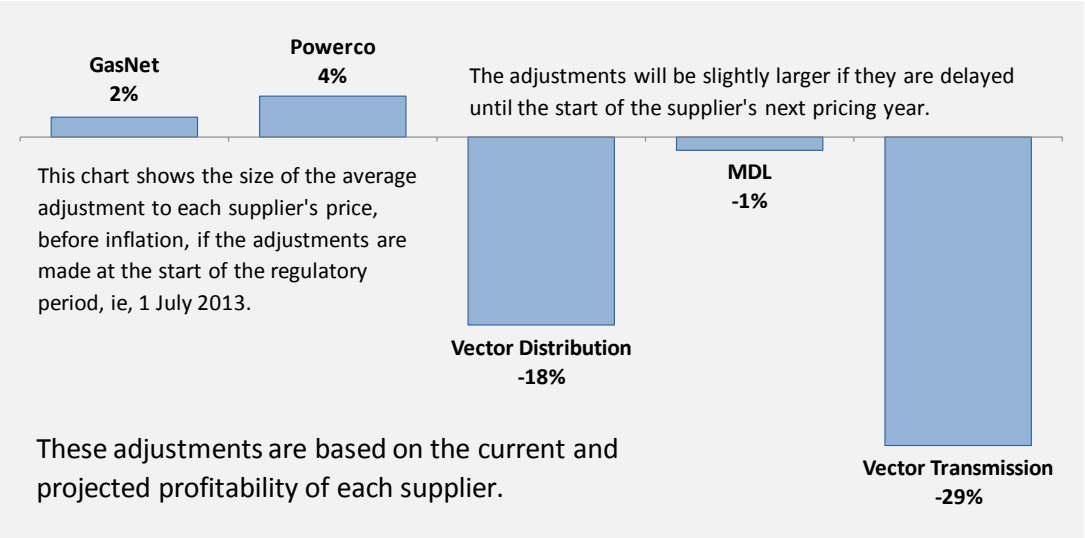
Table X2 Net revenue expected in the first assessment period

Supplier	Dates for first assessment period	Maximum allowable revenue
GasNet	1 July 2013 to 30 September 2014	$5.6m
Powerco	1 July 2013 to 30 September 2014	$60.2m
Vector Distribution	1 July 2013 to 30 September 2014	$86.6m
Vector Transmission	1 July 2013 to 30 September 2014	$110.0m
MDL	1 July 2013 to 30 June 2014	$39.8m

X9 Figure X1 shows the price adjustments that are implied by our decision, net of pass-through costs and recoverable costs.[1] From the end of the last pricing year, to the start of the next, the adjustment to average prices (before inflation) will range from approximately –29% for Vector Transmission to around +4% for Powerco.

[1] These values were calculated based on the average adjustment that each supplier would be likely to make if prices were adjusted at the start of the regulatory period, ie, on 1 July 2013. In practice, the average adjustments may be slightly larger if the price changes are delayed until the start of the next pricing year.

Figure X1 Profitability-based adjustments to average price



X10 For each industry, the weighted average adjustment before inflation is:

X10.1 –10% for the distribution component of gas bills; and

X10.2 –23% for the transmission component of gas bills.

X11 These figures must be interpreted with care. For example, the figures do not reflect the likely impact on retail prices. All else being equal, a given percentage change in gas distribution and transmission charges will translate into around one third of the impact on the bill of a typical residential customer. The other two thirds of the bill include natural gas and retail costs.[2]

X12 In subsequent assessment periods, we apply an escalation factor (or 'rate of change') to each supplier's starting price or revenue. Pass-through costs and recoverable costs are then added on to determine the maximum price or revenue.

X12.1 For suppliers of gas distribution services, prices will generally increase by inflation in each year, net of pass-through costs and recoverable costs.

X12.2 For suppliers of gas transmission services, revenue will generally increase by inflation in each year, net of pass-through costs and recoverable costs.

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2 The price changes may be different for residential, industrial, and commercial users. The exact magnitude of any adjustment for particular consumers will depend on whether gas distributors, or gas transmission businesses, choose to rebalance their pricing structure when price changes are notified. Price rebalancing by retailers would also have an impact.

X13 In both cases, the inflation constraint reflects the long run average productivity improvement rate in the sector, relative to the economy as a whole.

New standards that provide a proxy for service quality

X14 Quality standards are based on annual targets for response times to emergencies, which will supplement existing contractual arrangements and safety regulations. The specific targets are:[3]

X14.1 all suppliers of gas pipeline services must take 180 minutes or less to respond to any emergency; and

X14.2 gas distributors must take 60 minutes or less to respond to 80% of emergencies.

X15 These targets will provide suppliers with an incentive to respond promptly to emergencies, and provide a proxy for the responsiveness to the safety needs of consumers. We will also monitor each supplier's reliability of supply, for the purposes of providing summary and analysis of information disclosed under Part 4.

Relationship between supplier profitability and their starting price or revenue

X16 We determined the starting price or revenue for each supplier based on their current and projected profitability. The alternative available to us under the Act was to simply 'roll over' each supplier's existing average price or revenue.

X17 To illustrate the reason for our choice, Figure 3.2 shows the difference between forecast costs and revenues if current pricing were to continue. The estimates shown are present values as at 1 July 2013. In some cases, the potential for over-recovery is substantial, ie, up to $135.4m over the entire regulatory period.

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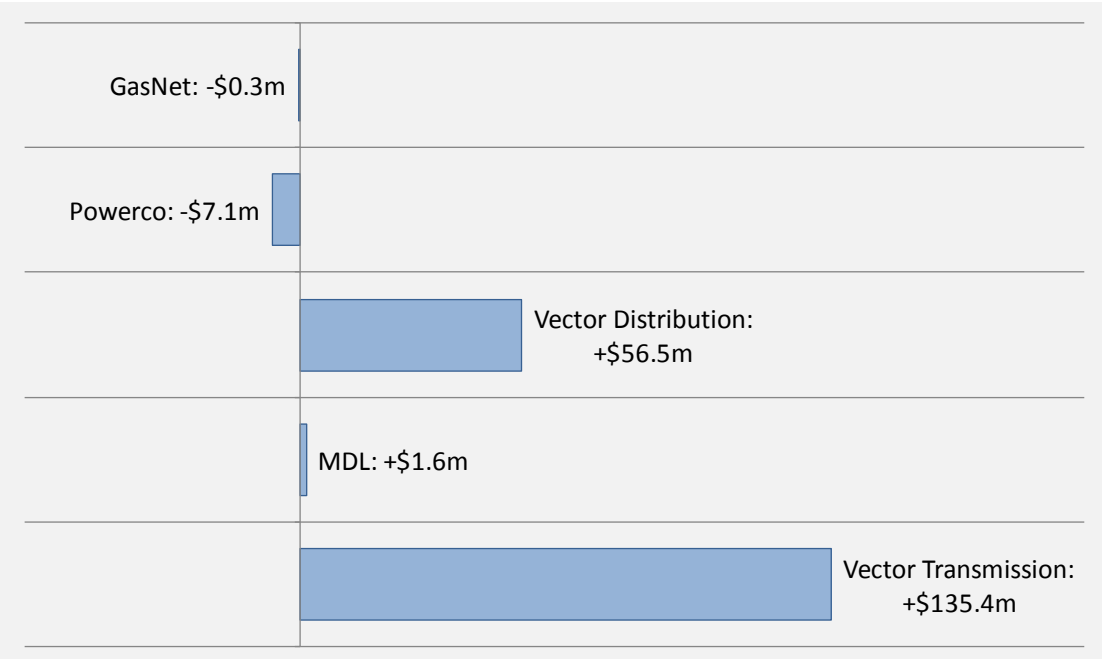
[3] 'Response Time' means the time elapsed from when an emergency is reported to a gas distribution or transmission business representative until the supplier's personnel arrive at the location of the emergency. Compliance with the quality standards will be assessed on an annual basis and suppliers must demonstrate that they did not exceed their target in each year of the regulatory period.

Figure X2 Forecast revenues minus forecast costs
1 July 2013 to 30 September 2017



X18 We are therefore satisfied that starting price or revenue should be based on current and projected profitability because this means that:

X18.1 Future revenues will better reflect future costs, ie, profitability will be more consistent with the outcomes produced in competitive markets; and

X18.2 Any efficiency gains made prior to the regulatory period will be shared with consumers.

X19 Setting starting price or revenue based on current and projected profitability also applies the up-front rules, requirements and processes of regulation, which are collectively known as 'input methodologies'. In contrast, rolling over a supplier's prices in the present circumstances would apply a starting price or revenue that was set without reference to the input methodologies determined under Part 4.

Individual suppliers have the opportunity to have an alternative price-quality path

X20 A 'customised price-quality path' is available for any supplier that considers that an alternative price-quality path would better meet their particular circumstances. This is important because a default price-quality path is not intended to meet all the circumstances that a supplier may face.

X21 Consistent with the purpose of default/customised price-quality regulation, each default price-quality path has been set in a relatively low cost way. For example:

X21.1 our modelling of operating expenditure and revenue relies on independent forecasts, and simplifying assumptions, that are free of systematic bias, in either direction; and

X21.2 within limits, we have relied on supplier forecasts of capital expenditure, to allow for increases of up to 20% relative to historic levels of investment.

X22 By proposing a customised price-quality path, a supplier can have all of their information taken into account through audit, verification and evaluation processes. Further scrutiny of each supplier's forecasts would then allow us to confirm whether higher prices are justifiable.

1. Introduction

Purpose of this paper

1.1 This paper explains the default price-quality paths that we have set for suppliers of gas pipeline services. These paths will apply from 1 July 2013 to 30 September 2017.

Price-quality regulation of gas pipeline services

1.2 Part 4 of the Commerce Act 1986 ('the Act') is one of the primary pieces of legislation for economic regulation in New Zealand. Part 4 provides for regulation in markets in which there is little or no competition, and where there is little or no likelihood of a substantial increase in competition.

1.3 Under Part 4, we are required to regulate the transportation of gas by pipeline. However, we only regulate the 'gas pipeline services' that are specified in the Act.[4] Table 1.1 sets out the suppliers of these services.

Table 1.1 List of suppliers that provide gas pipeline services

Gas distribution businesses	Gas transmission businesses
GasNet Limited (GasNet)	Maui Development Limited (MDL)
Powerco Limited (Powerco)	Vector Limited (Vector Transmission)
Vector Limited (Vector Distribution)	

1.4 Each of the suppliers in Table 1.1 is subject to price-quality regulation.[5] This means that we must set limits on each supplier's maximum price or revenue, as well as setting minimum standards for service quality. These 'price-quality paths' will then generally remain in force for a period of time known as the 'regulatory period'.

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4 The meaning of gas pipeline services is set out at s 55A of the Act. Specific pipelines are exempt under this definition. The list of exempt pipelines is contained in Schedule 6 of the Act.

5 Each supplier is also subject to information disclosure regulation. This type of regulation requires suppliers to disclose sufficient information to allow interested parties assess whether the purpose of Part 4 is being met.

Default/customised price-quality regulation involves two kinds of price-quality path

1.5 The specific type of price-quality regulation that applies to suppliers of gas pipeline services is 'default/customised price-quality regulation'. Under this type of regulation, we set default price-quality paths for suppliers, but individual suppliers may seek a customised price-quality path instead.[6]

1.6 The purpose of this type of regulation is to provide a relatively low cost way of setting price-quality paths for suppliers, while allowing individual suppliers the opportunity to have alternative price-quality paths that better meet their particular circumstances.[7] We have taken this to mean that:

1.6.1 Default price-quality paths will be set in a relatively low cost way; and

1.6.2 Customised price-quality paths must be tailored to a supplier's circumstances.

1.7 A supplier of gas pipeline services can propose a customised price-quality path at any time except during the final year of the regulatory period. The customised price-quality path would then apply in place of the default price-quality path, for a term of three to five years.

Our task is to specify how price-quality regulation applies to each supplier

1.8 Our task is to specify how price-quality regulation applies to each supplier as soon as practicable after 1 July 2010.[8] Prior to 1 July 2010, GasNet, MDL and Vector Transmission were not subject to any regulation by the Commission. Meanwhile, the price control applying to Powerco and Vector Distribution expired on 1 July 2012.[9]

1.9 Notably, a supplier may be required to compensate consumers if its weighted average price has increased faster than inflation since 1 January 2008. Applying 'claw-back' means that prices would have to be lowered temporarily to compensate consumers for some or all of any over-recovery of revenue that occurred previously.

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6 Refer: s 52B(2)(c)(i) of the Act.

7 Refer: s 53K of the Act.

8 Nevertheless, a price-quality path cannot apply retrospectively to that date. Refer: s 53M(7) of the Act.

9 For Vector, only the gas distribution services supplied in the Auckland area were subject to price control. More information about both sets of price control can be found in: Commerce Commission, Decision 656: *Authorisation – Powerco – Control of Supply of Natural Gas Distribution Services, 30 October 2008*; and Commerce Commission, Decision 657: *Authorisation – Vector – Control of Supply of Natural Gas Distribution Services*, 30 October 2008.

Default price-quality paths for the first regulatory period

1.10 This paper marks the end of our consultation on the default price-quality paths for the first regulatory period, which is 1 July 2013 to 30 September 2017. The first regulatory period will therefore be four years and three months in length.[10]

New limits on maximum price or revenue and minimum standards for service quality

1.11 For each supplier, the default price-quality path must specify maximum price or revenue, and minimum quality standards. Both matters must be determined in a manner consistent with the Act.

1.12 Amongst other things, we are required to establish a 'baseline' for maximum price or revenue across the regulatory period. The two components of the baseline are:

1.12.1 The 'starting price or revenue' allowed at the start of the regulatory period;[11] and

1.12.2 The 'rate of change in price or revenue', relative to the Consumer Price Index ('CPI'), that is allowed in later parts of the regulatory period.[12]

1.13 Two cost categories are then added to the baseline in each part of the regulatory period to calculate maximum price or revenue. These amounts are known as 'pass-through costs' and 'recoverable costs'. Both cost categories capture spending that the supplier has little or no control over. For example, local rates and levies are both types of pass-through costs.

Each default price-quality path will promote the purpose of Part 4

1.14 In this paper, we explain the default price-quality paths that we have set for each supplier. For instance, we explain how and why we have set starting prices based on the current and projected profitability of each supplier, rather than rolling over the supplier's existing prices.

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10 Usually, a regulatory period would be five years in length, but a shorter period may be set if it would better promote the purposes of Part 4. Refer: ss 53M(4) and (5) of the Act. In this case, we have shortened the regulatory period to align with the end of most suppliers' pricing year. Amongst other things, this will reduce complexity in assessing compliance, and in assessing supplier performance.

11 Part 4 of the Act only includes references to 'starting price', but the definition of 'price' in s 52C covers both price and revenue and, among other things, can mean aggregate prices and be in the form of formulas by which specific numbers are derived. In this paper, we have therefore used the term 'starting price or revenue' to help assist the reader. In addition, any references to price should be taken to mean a weighted average price unless otherwise stated.

12 The supplier's baseline therefore takes the traditional regulatory form of 'CPI-X%', where X is the percentage differential that we refer to as the rate of change in price or revenue.

1.15 Overall, we are satisfied that these default price-quality paths will promote the purpose of Part 4. The 'Part 4 Purpose' is:[13]

> ...to promote the long-term benefit of consumers…by promoting outcomes that are consistent with outcomes produced in competitive markets such that suppliers of regulated goods or services:
>
> (a) have incentives to innovate and to invest, including in replacement, upgraded, and new assets; and
>
> (b) have incentives to improve efficiency and provide services at a quality that reflects consumer demands; and
>
> (c) share with consumers the benefits of efficiency gains in the supply of the regulated goods or services, including through lower prices; and
>
> (d) are limited in their ability to extract excessive profits.

1.16 The Part 4 Purpose will be promoted because we will constrain prices or revenues, which will produce pressures that are similar to those in competitive markets. During a regulatory period, profits will fall if costs are not controlled. Profits will rise if costs are reduced.[14] Suppliers therefore face a direct incentive to improve their efficiency.

1.17 Quality standards are important too, because they mitigate the risk that suppliers will cut their costs by compromising quality. Suppliers will therefore be more likely to provide services at a quality that reflects consumer demands. The quality standards expected in future can also affect a supplier's incentive to invest in the network.

A customised price-quality path is an alternative option for suppliers

1.18 However, a default price-quality path is not intended to meet all the circumstances that a supplier may face. For example, large scale investments have not been provided for under the default price-quality path.

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13 Refer: s 52A(1) of the Act. Under s 55I, of the Act, we are also required to consider the impact of certain decisions made under Gas Act 1992. However, we have not been advised of any recommendations, decisions, or guidelines that are likely to be relevant to the default price-quality paths for the first regulatory period.

14 In the medium- to long-term, the benefits of any efficiency gains will be shared with consumers when prices are reset, thereby limiting the ability of suppliers to extract excessive profits. For a fuller discussion of the way in which price-quality paths promote the Part 4 Purpose, please refer to: *Commerce Commission, Input Methodologies (Electricity Distribution and Gas Pipeline Services) - Reasons Paper*, December 2010.

1.19 A customised price-quality path is available for any supplier that considers that an alternative price-quality path would better meet their particular circumstances. Further scrutiny of each supplier's forecasts would then allow us to confirm whether higher prices are justifiable.

1.20 We explain the process for considering a supplier's proposal in more detail in Chapter 5, as well as the role that the proposal process plays in promoting the Part 4 Purpose.

Scope of this paper

1.21 This paper accompanies the two legal documents that set out the default price-quality paths for gas distributors, and gas transmission businesses.[15] We have therefore provided an overview of, and reasons for, the default price-quality paths that are contained in those 'determinations'.

1.22 Throughout the paper, we explain the way in which we have applied the up-front rules, requirements and processes of regulation, which are collectively known as 'input methodologies'. The Act requires us to apply the input methodologies that we have set for default price-quality paths.[16]

1.23 We also explain the way in which we have taken into account the material received since our draft decision was published ('revised draft decision').[17] That material includes written responses to our revised draft decision, as well as responses to a subsequent update paper.[18] We also requested specific information from suppliers.

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15 Gas Distribution Services Default Price-Quality Path Determination 2013 [2013] NZCC 4; Gas Transmission Services Default Price-Quality Path Determination 2013 [2013] NZCC 5.

16 Refer: s 52S. For example, we applied specific rules for cost allocation and asset valuation when determining each supplier's costs to assess their profitability. Input methodologies also affected our choice between maximum price, and maximum revenue, for gas transmission businesses. They also define the costs that can be passed through to consumers. Notably, the input methodologies for Gas Distribution Businesses and Gas Transmission Businesses were amended on 27 February 2013. We have applied the amended input methodologies in reaching our decisions.

17 We use the term 'revised draft decision' to refer to the draft determination that we published, as well as the accompanying draft reasons paper. Refer: Commerce Commission, *Gas Distribution Default Price-Quality Path Determination 2013 – Consultation Draft*, 24 October 2012; Commerce Commission, *Gas Transmission Default Price-Quality Path Determination 2013 – Consultation Draft*, 24 October 2012; Commerce Commission, *Revised Draft Decision on the Initial Default Price-Quality Paths for Gas Pipeline Services*, 24 October 2012.

18 We have also taken into account material provided outside of earlier consultation timeframes. For example: Letter from Allan Carvell (Group General Manager Regulation and Pricing), Re: *Starting price*

Other material that has been released alongside this paper

1.24 The following material will be released for interested parties to consider alongside this paper:

1.24.1 The Excel models that we relied on to reach our final decision; and

1.24.2 An independent review undertaken by Nel Consulting Limited of supplier-proposed adjustments to initial regulatory asset values.

1.25 We have also released an accompanying paper on the reporting requirements for the default price-quality path. That paper is entitled *Compliance requirements for the default price-quality paths for gas pipeline services*.

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adjustments for electricity distribution and gas pipeline services, 5 July 2012; available at: http://www.comcom.govt.nz/2010-2015-default-price-quality-path/.

2. Maximum price or revenue at the start of the regulatory period

Purpose of this chapter

2.1 This chapter explains the reasons for the limit on each supplier's maximum average price, or total revenue, at the start of the regulatory period.

Determinants of maximum price or revenue at the start of the regulatory period

2.2 Whether a supplier is subject to a maximum price or revenue depends on the input methodologies for the type of service in question.

2.2.1 Suppliers of gas distribution services will be subject to a limit on their maximum price ('price cap').[19]

2.2.2 Suppliers of gas transmission services will be subject to a limit on their maximum revenue ('revenue cap').[20]

2.3 During the regulatory period, we will regularly assess whether each supplier is complying with their price or revenue cap. Each 'assessment period' usually ends on the same date as the supplier's pricing year. The start and end dates for the first assessment period are set out below.

Dates that the first assessment period will start and end

2.4 The first assessment period will start on the date that the regulatory period begins, and finish on the same date that the supplier's next pricing year comes to an end. Figure 2.1 shows the relevant dates for each supplier.

Table 2.1 Start and end dates for the first assessment period

Supplier	Dates of first assessment period	
	Start date	End date
MDL	1 July 2013	30 June 2014
All other suppliers	1 July 2013	30 September 2014

[19] In the case of gas distributors, the input methodologies for the specification of price for gas distribution services require us to apply a constraint on each supplier's maximum average price.

[20] Attachment F sets out our reasons for applying a constraint on maximum revenue to MDL and Vector Transmission, rather than a constraint on their maximum average price.

2.5 We expect that each supplier will announce their first price changes in time for the start of their next pricing year, ie, 1 July 2013 for MDL, and 1 October 2013 for all other suppliers. This is because price changes need not occur at the start of the regulatory period.

Starting price or revenue—The baseline for maximum price or revenue

2.6 Table 2.2 sets out the amount that we expect that each supplier will be allowed to earn, in the first assessment period, on the basis of their starting price or revenue. These values are taken from the determination, where they are referred to as 'maximum allowable revenue'.

Table 2.2 Maximum allowable revenue for the first assessment period

Supplier	Months in first assessment period	Maximum allowable revenue for first assessment period
GasNet	15	$5.6m
Powerco	15	$60.2m
Vector Distribution	15	$86.6m
Vector Transmission	15	$110.0m
MDL	12	$39.8m

2.7 In practice, a supplier may be able to earn slightly more or less than the values shown in Table 2.2 This is because we have made assumptions about each supplier's growth in billed quantities up to the start of the regulatory period. A supplier will be able to earn more than the amounts shown in Table 2.2 if billed quantities grow faster than our assumptions.

Pass-through costs and recoverable costs are added to the baseline

2.8 Each supplier is also able to include pass-through and recoverable costs when calculating their maximum price or revenue. The costs that can be included in each of these categories are set out in the determination.

2.8.1 'Pass-through costs' include local authority rates, and various levies, eg, Commerce Act levies, Gas Act levies, and Electricity and Gas Complaints levies.

2.8.2 'Recoverable costs' for the first regulatory period are confined to a single type of cost, which only affects gas transmission businesses, ie, balancing gas costs or credits that have not been allocated to gas shipper, or recovered from or credited to a welded party.[21]

2.9 Each supplier is allowed to pass on any pass-through or recoverable costs that are known (not forecast) for the first assessment period as at the start of their next pricing year, ie, as at 1 October 2013 for all suppliers except MDL, and 1 July 2013 for MDL. Costs that become known after these dates may be recovered in a later assessment periods.[22]

2.10 For Powerco and Vector Distribution, we have also provided for a type of pass-through cost that is specific to the first assessment period. In particular, these suppliers will be able to recover any pass-through costs from the previous price controls that they have not recovered before the start of the regulatory period.

Relationship between supplier profitability and their starting price or revenue

2.11 We determined the starting price or revenue for each supplier based on their current and projected profitability. The alternative available to us under the Act was to simply 'roll over' each supplier's price or revenue from an earlier date.[23]

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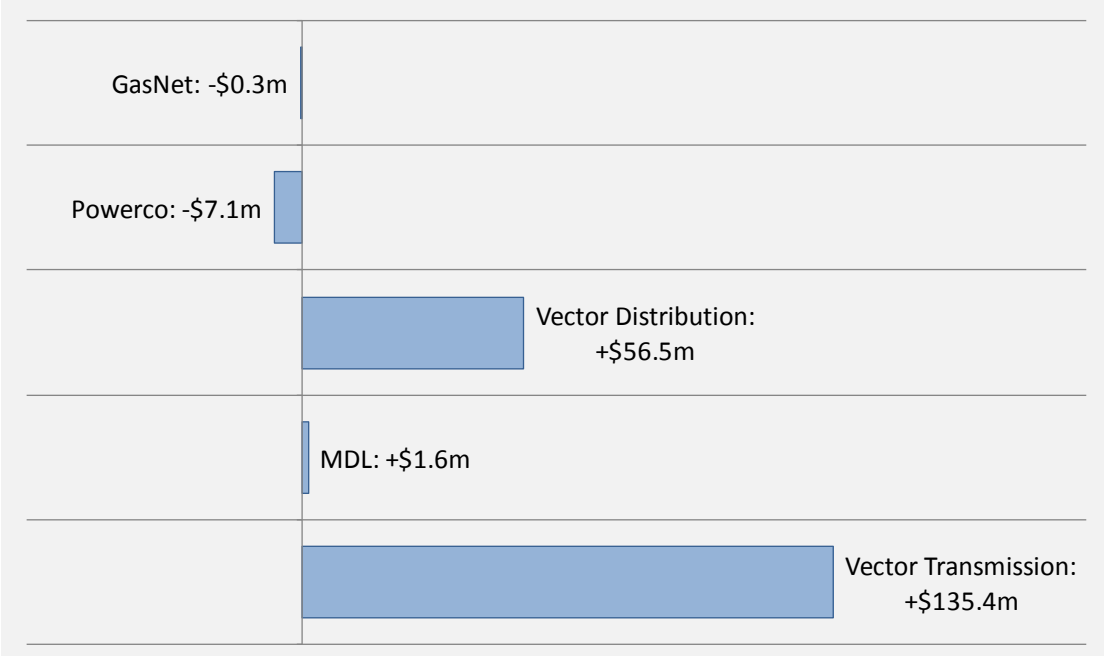
21 Unaccounted for gas on Vector's transmission network is an example of a balancing gas cost or credit.

22 For example, due to the timing we don't expect that MDL or Vector Transmission will pass on any balancing gas costs in the first assessment period.

23 The option to choose between these two approaches is provided for under s 53P(3) of the Act.

2.12 To illustrate the reason for our choice, Figure 3.2 shows the difference between forecast costs and revenues if current pricing were to continue. The estimates shown are present values as at 1 July 2013. In some cases, the potential for over-recovery is substantial, ie, up to $135.4m over the entire regulatory period.

Figure 2.1 Forecast revenues minus forecast costs
1 July 2013 to 30 September 2017



2.13 We are therefore satisfied that starting price or revenue should be based on current and projected profitability because this means that:

2.13.1 Future revenues will better reflect future costs, ie, profitability will be more consistent with the outcomes produced in competitive markets; and

2.13.2 Any efficiency gains made prior to the regulatory period will be shared with consumers.

2.14 Setting starting price or revenue based on current and projected profitability also applies input methodologies, and requires us to make other decisions that are informed by the Part 4 Purpose. In contrast, rolling over a supplier's prices in the present circumstances would apply a starting price or revenue that was set without reference to the input methodologies determined under Part 4.[24]

Supplier profitability was assessed in a relatively low cost way

2.15 Consistent with the purpose of default/customised price-quality regulation, we assessed supplier profitability in a relatively low cost way. A combination of low cost techniques were used, like the supplier's own forecasts, independent forecasts, and simplifying assumptions, instead of relying on full audit, verification, and evaluation processes.

2.16 However, we would still generally expect suppliers to earn an appropriate return under the default price-quality path. This is because:

2.16.1 our modelling of operating expenditure and revenue relies on independent forecasts that are free of systematic bias, in either direction;

2.16.2 our modelling of investment in the network relies on supplier forecasts, capped at 20% relative to historic levels, in addition to an uplift for changes in the price of inputs; and

2.16.3 the rate of return that we have allowed is above the central estimate of the cost of capital for the industry.[25]

2.17 Nevertheless, we have not relied on the suppliers own forecast of all variables when setting the default price-quality path and, as such, one or more suppliers may expect to earn less than a normal return.[26] Chapter 6 explains why a customised price-quality path is the appropriate mechanism to address such situations, ie, it allows us to assess whether the supplier's forecasts are robust.

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24 In principle, we would therefore only have rolled over prices in the current circumstances if they happened to produce a price that was similar to what would have been produced by setting starting prices based on current and projected profitability.

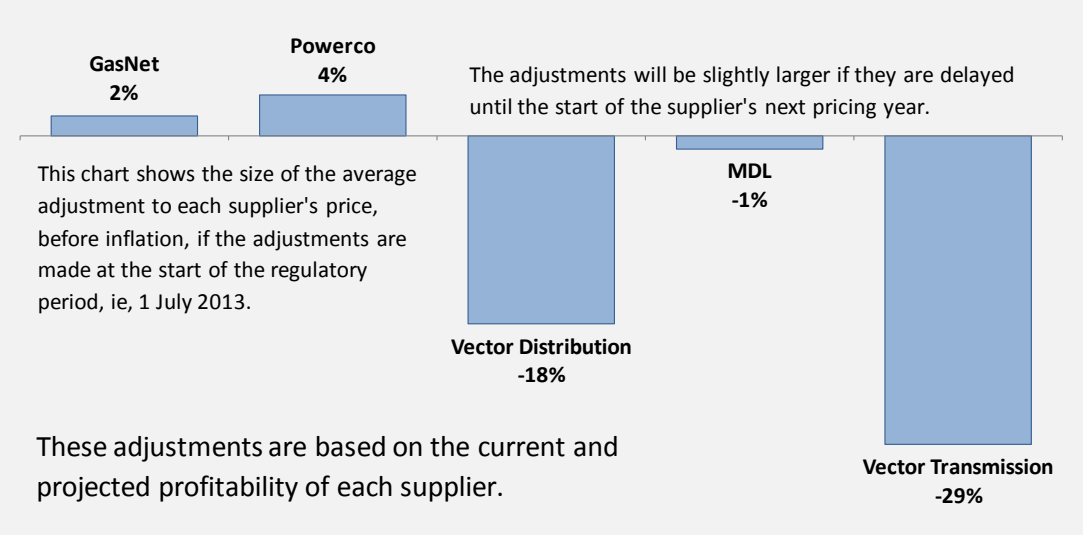
25 The difference between the 75th percentile estimate of the cost of capital and 50th percentile is equivalent to about 0.8 percentage points based on the cost of capital estimate we used for this decision.

26 For example, both Vector Transmission and MDL have included major investments in the forecasts that they have provided. These investments are approximately equivalent to an additional $49.9m for MDL and $53.1m for Vector Transmission (2011 prices) over the regulatory period. This represents an increase of 1793% and 232%, respectively, relative to historic levels.

Adjustments to each supplier's average price

2.18 Figure 2.2 shows the price adjustments implied by our decision before pass-through costs and recoverable costs are taken into account.[27] From the end of the last pricing year, to the start of the next, the average price adjustment before inflation will range from approximately –29% for Vector Transmission to around +4% for Powerco.[28]

Figure 2.2 Profitability adjustment to average price



2.19 For each industry, the weighted average adjustment before inflation is:

2.19.1 –10% for the distribution component of gas bills; and

2.19.2 –23% for the transmission component of gas bills.

2.20 These figures must be interpreted with care. This is because the figures simply give an indication of the likely impact that our decision will have on the average price charged by each gas distributor, or gas transmission business, net of pass-through costs and recoverable costs are taken into account.

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27 These values were calculated based on the average adjustment that each supplier would be likely to make if prices were adjusted at the start of the regulatory period, ie, on 1 July 2013. In practice, the average adjustments may be slightly larger if the price changes are delayed until the start of the next pricing year.

28 Note that the price adjustment for MDL has been calculated on a different basis than it was in our revised draft decision. In particular, we have assumed that MDL is currently pricing in line with a revenue cap instead of a price cap. Under our previous approach, our forecast of MDL's unadjusted prices was significantly lower.

2.21 Therefore, the figures do not reflect the likely impact on retail prices.[29] All else being equal, a given percentage change in gas distribution and transmission charges will translate into around one third of the impact on the bill of a typical residential customer. The other two thirds of the bill include natural gas and retail costs.

2.22 In addition, price changes may also be different for residential, industrial, and commercial users. The exact magnitude of any adjustment for particular consumers will depend on whether gas distributors, or gas transmission businesses, choose to rebalance their pricing structure when price changes are notified. Price rebalancing by retailers would also have an impact.

Suppliers are required to disclose information about pricing methodologies

2.23 Under Part 4, gas distributors and gas transmission businesses are required to disclose information about the pricing methodologies used to determine prices for different consumer groups. However, at present there is no restriction on the extent to which prices for different consumer groups can be rebalanced.

2.24 We intend to monitor and analyse the prices that suppliers set for different groups of consumers, by using the pricing principles that are set out in the input methodologies for information disclosure. The first pricing methodologies disclosed under the new information disclosure requirements are due by 1 March 2013.

2.25 As noted by Powerco in its cross-submission, the disclosure of information about relative prices and pricing methodologies should provide interested parties with sufficient information to determine whether existing pricing arrangements are appropriate.[30] The Major Gas Users Group stated a concern that the benefits of lower pricing will not be distributed equally across the consumer base.[31]

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29 In 2011 gas transmission and distribution charges in New Zealand on average made up around 34% of the cost of gas paid by residential customers connected to the GasNet, Vector Distribution and Powerco networks. Source: Commission calculations using information provided by gas distributors and transmission businesses, and information from the Energy Data File published by the Ministry of Business, Innovation and Employment.

30 Powerco, *Cross submission on submissions to the Draft Decision on Initial DPPs for Gas Pipeline Businesses*, 21 December 2012, pp2-3.

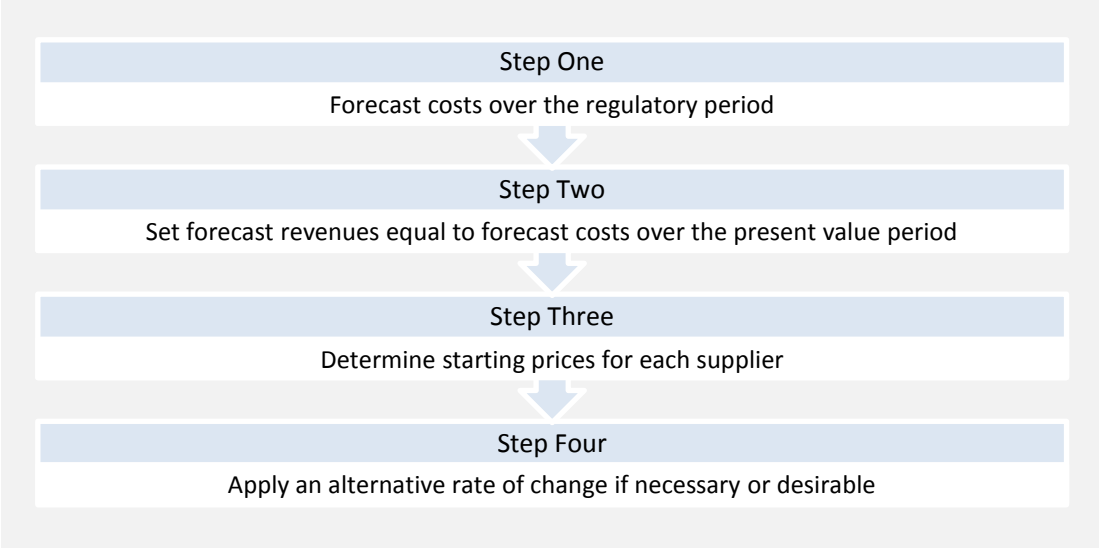
31 Major Gas Users Group, *Submission on Revised Draft Decision on the Initial Default Price-Quality Paths for Gas Pipeline Services*, 7 December 2012, pp2-3.

2.26 Once we have analysed the existing arrangements, we will consider whether amendments to the pricing input methodologies may better promote the Part 4 Purpose. For example, we may consider applying the pricing methodologies to the default price-quality path in future.[32]

Main steps in the calculation of starting price or revenue

2.27 The approach that we used to calculate the starting prices for each supplier has four main steps. These steps are shown in Figure 2.3.

Figure 2.3 Overview of approach used to determine starting prices



2.28 Each of the steps in the approach is explained in the sections that follow. We begin by setting out one of the key ways in which we applied input methodologies in reaching this decision, ie, when we calculated each supplier's costs to assess their profitability.

32 Pricing methodologies already exist for default/customised price-quality regulation, but currently only apply to customised price-quality paths.

Step One—How we forecast each supplier's costs over the regulatory period

2.29 Consistent with input methodologies, we used a 'building block' based approach to forecast each supplier's costs. The main building block cost categories are:[33]

2.29.1 Operating expenditure, excluding pass-through costs and recoverable costs;

2.29.2 The return of capital, to allow recovery of depreciation;

2.29.3 Tax costs; and

2.29.4 The return on capital, net of any asset revaluations.[34]

2.30 To calculate each of these cost categories, we applied input methodologies. These input methodologies set out how:[35]

2.30.1 Forecast and existing investments are valued;

2.30.2 Depreciation and revaluations are calculated;

2.30.3 Tax costs are calculated;

2.30.4 Costs are allocated; and

2.30.5 The cost of capital is estimated.

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33 An overview of the building block approach can be found in 2.8.5 to 2.8.20 of Commerce Commission, Input Methodologies (Electricity Distribution and Gas Pipeline Services), Reasons Paper, 22 December 2010.

34 The cost of capital that we applied was 7.44%, which was determined by applying the input methodologies for the cost of capital. Where necessary, the return on capital includes a term credit spread differential allowance to recognise additional costs that can be incurred by suppliers with longer term debt. Commerce Commission, *Cost of capital determination for default price-quality paths for suppliers of gas distribution and gas transmission services, and customised price-quality path proposals made by Vector Limited and GasNet Limited* [2012] NZCC 38.

35 Because the length of the proposed regulatory period is four years and three months, we assessed had to assess building block costs on a part-year basis to account for the three month period. In this case, we calculated a full year amount, and divided it by four to determine the amount attributable to the part-year.

2.31 These calculations are generally informed by our expectations for capital expenditure, operating expenditure, and other line items under the default price-quality path. More detail on the approaches that we have used to forecast each of these matters can be found in:

2.31.1 Attachment B: Allowances for capital expenditure;

2.31.2 Attachment C: Allowances for operating expenditure; and

2.31.3 Attachment D: Forecasts of other line items.

Step Two—How we set forecast revenue equal to forecast costs

2.32 Once we have calculated each supplier's building block costs in a particular year (or part-year) of the regulatory period, we add the various components together to determine 'building blocks allowable revenue'. Building block allowable revenue is the amount of revenue that a supplier should be allowed to earn to recover their costs.[36]

2.33 Notably, building blocks allowable revenue will vary from year to year during the regulatory period. This is because of factors such as the age profile of the asset base, annual changes in operating expenditure, and the assessment of tax costs.

2.34 Consequently, we calculate the present value of building blocks allowable revenue over the regulatory period. This is the amount that we expect the supplier would require to be able to earn a normal return over the regulatory period. The discount rate used in this calculation is the industry-wide cost of capital of 7.44%.[37]

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[36] In assessing building blocks allowable revenue, we take into account the likely timing of each item. The timing assumptions that we propose to rely on are explained in Attachment G.

[37] The estimate of the cost of capital is calculated on post-tax nominal basis. Commerce Commission, *Cost of capital determination for default price-quality paths for suppliers of gas distribution and gas transmission services, and customised price-quality path proposals made by Vector Limited and GasNet Limited* [2012] NZCC 38.

2.35 Finally, we determine the path of revenue that would mean that the supplier is able to recover the present value of the building blocks allowable revenue over the regulatory period. This 'smoothed' path of revenue assumes that suppliers will adjust prices at the start of the regulatory period, and then again at the start of each subsequent pricing year, ie, by the rate of change in price or revenue.[38] The slope of the 'smoothed' path of revenue reflects the factors that affect each supplier's revenue during the regulatory period. In particular, a supplier's revenue depends on:

2.35.1 In the case of a revenue cap, the rate of change in revenue that is allowed; and

2.35.2 In the case of a weighted average price cap, the average rate of change in price that the supplier is allowed, as well as changes in the quantities billed (the latter of which results in 'constant price revenue growth').

2.36 Our approach to assessing constant price revenue growth is explained in Attachment E.

Step Three—How we determined starting price or revenue

2.37 Before setting the starting price or revenue for each supplier, we tested to see whether there was an argument for including an additional allowance for suppliers. In particular, we compared our forecasts of the amount of revenue that each supplier requires over the regulatory period, with each supplier's own forecast.

2.38 For the reasons given in Attachment H, we included a small additional allowance for both GasNet and Powerco. These additional allowances have been included to reduce the probability of either supplier proposing a customised price-quality path. For other suppliers, the reduction in the probability of a proposal was too small to justify the inclusion of an additional allowance.

Step Four—How alternative rates of change were applied

2.39 As discussed further in Chapter 4, we have not applied any alternative rates of change for the first default price-quality path. Alternative rates of change in price or revenue would only have been applied if, in our opinion, an alternative rate of change was necessary or desirable to minimise price shocks to consumers, or financial hardship to suppliers.

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[38] In practice, the actual price adjustments will depend on the timing of the supplier's price changes. However, the expected net present value will be the same irrespective of the timing of the adjustment.

3. Maximum price or revenue in later parts of the regulatory period

Purpose of this chapter

3.1 This chapter explains the limit on each supplier's maximum average price, or total revenue, in later parts of the regulatory period.

Determinants of maximum price or revenue in later parts of the regulatory period

3.2 The start and end dates of the second, third, and fourth assessment periods are shown in Table 3.1 below.

Table 3.1 Second, third and fourth assessment periods

Assessment period	Supplier	Start date	End date
Second	MDL	1 July 2014	30 June 2015
	All other suppliers	1 October 2014	30 September 2015
Third	MDL	1 July 2015	30 June 2016
	All other suppliers	1 October 2015	30 September 2016
Fourth	MDL	1 July 2016	30 June 2017
	All other suppliers	1 October 2016	30 September 2017
Fifth	MDL	1 July 2017	30 September 2017

Rate of change in price or revenue establishes the baseline for maximum price or revenue

3.3 In each assessment period, the rate of change in price or revenue is used to escalate the baseline for maximum price or revenue, which is expressed net of pass-through costs and recoverable costs.

3.3.1 For suppliers of gas distribution services, the baseline for maximum price will generally increase by CPI-0% each year.

3.3.2 For suppliers of gas transmission services, the baseline for maximum revenue will generally increase by CPI-0% each year.

3.4 The CPI-0% constraint will affect the price adjustments that are allowed from:

3.4.1 The first to the second assessment period;

3.4.2 The second to the third assessment period; and

3.4.3 The third to the fourth assessment period.

3.5 However, we stress that the rate of change in price or revenue is unlikely to provide a good guide to the average price changes notified by MDL and Vector Transmission. This is because MDL and Vector Transmission are subject to a constraint on their maximum revenue, not a constraint on their average price. Therefore, changes in their billed quantities will also affect their prices.

Pass-through costs and recoverable costs are added to the baseline

3.6 After the first assessment period, the definitions for pass-through costs, and recoverable costs, remain similar to the definitions applied in the first assessment period. An overview of these definitions is provided in paragraphs 2.8 to 2.10.

3.7 If pass-through or recoverable costs are paid but not claimed in a previous assessment period, then they can be adjusted by the time value of money. We have set the factor for making adjustments for the time value of money using a cost of debt of at 5.38%.[39] This is the estimate of the 5-year cost of debt rate (pre-corporate tax) that was used to determine cost of capital.[40]

Productivity-based rate of change in price or revenue

3.8 We determined the common rate of change in price or revenue based on the long run average productivity improvement rate in the sector. More precisely, we determined the rate of change based on the difference between the long run productivity improvement rate in the sector compared to the economy as a whole.[41]

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39 The use of the cost of debt is consistent with submissions on the appropriate method for calculating the time value of money adjustment for claw-back. Refer, for example: Vector, *Submission to the Commerce Commission on Revised Draft Decision on the Initial Default Price-Quality Path for Gas Pipeline Services*, 6 December 2012, paragraph 180.

40 Commerce Commission, *Cost of capital determination for default price-quality paths for suppliers of gas distribution and gas transmission services, and customised price-quality path proposals made by Vector Limited and GasNet Limited*, [2012] NZCC 38, 20 December 2012, p. 5.

41 For further discussion on how we have arrived at this view, refer: Commerce Commission, *Initial Reset of the Default Price-Quality Path for Electricity Distribution Businesses Decision Paper*, 30 November 2009, Chapter 5.

3.9 We found no evidence to indicate that the productivity of suppliers of gas pipeline services has improved by more or less than the rest of the economy. The conclusions of a study by Economics Insights support our finding.[42] This finding has previously been supported by suppliers.[43]

Rate of change in price or revenue affects the time profile of revenues

3.10 The rate at which revenues are recovered during the regulatory period is primarily affected by the rate of change in price or revenue. However, under our approach the rate of change in price or revenue will not affect the overall amount of revenue that suppliers can expect to earn over a regulatory period.[44]

3.11 Productivity measures have been allowed for in our calculation of each supplier's allowance for operational expenditure, which will have an impact on the amount that can be earned during the regulatory period. We therefore do not agree with the submission from Vector that our modelling takes insufficient account of productivity improvements.[45]

No alternative rates of change will apply to individual suppliers

3.12 We do not consider that alternative rates of change in price or revenue would be necessary or desirable for any individual suppliers. Alternative rates of change in price or revenue can only be set to help minimise price shocks to consumers, or undue financial hardship for suppliers.[46]

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42 Based on the information available, over both the long term and the short term, Economics Insights found that there was no robustly identifiable productivity differential between the overall economy and gas distribution and transmission businesses. Refer: *Economic Insights Pty Limited, Regulation of suppliers of Gas Pipeline Services – Gas Sector Productivity*, 10 February 2011.

43 Refer, for example: Vector, *Submission to the Commerce Commission on Initial DPP for GPBs Draft Reasons Paper*, 19 December 2011, para 27.

44 Our approach therefore contrasts with a situation in which starting price or revenue is rolled over from a previous period. In that situation, the rate of change in price or revenue would have a direct impact on the amount of revenue that the supplier expects to earn over the regulatory period.

45 Refer: *Submission to the Commerce Commission on Revised Draft Decision on the Initial Default Price-Quality Path for Gas Pipeline Services,* 6 December 2012, p20.

46 Refer: s 53P(8) of the Act.

3.13 No alternative rates of change were necessary or desirable for price shocks because all the increases are below the CPI+10% level we have previously used as an indicator of price shock.[47] We did not receive any submissions that objected to this approach.

3.14 Nor did we receive sufficient evidence that any supplier would face undue financial hardship. In our revised draft decision, we invited suppliers to provide evidence of undue financial hardship, showing that:

3.14.1 The proposed revenue adjustment would, or was likely to, limit the supplier's ability to finance its reasonable investment needs and meet its debt repayments as they fall due;[48] and

3.14.2 It would not be reasonable and/or possible for the supplier to address its limited ability to finance its reasonable investment needs and meet its debt repayments as they fall due by altering its behaviour.[49]

3.15 The only submission that we received in response to this request for evidence was from Castalia, on behalf of Vector. They submitted that, as a general proposition, our decision may have an impact on the ability of suppliers to finance their investment needs.[50] However, in our view Castalia did not provide sufficient evidence that any particular supplier was likely to experience undue financial hardship.

3.16 At a minimum, suppliers could have provided the following pieces of evidence in support of a claim for undue financial hardship:

3.16.1 gearing;

3.16.2 payout ratio;

3.16.3 pre-tax interest cover;

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47 See for example - Commerce Commission, *Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 21 August 2012, paras 125 and 129 for discussion of price-shocks.

48 The expenditure objective for customised price-quality paths provides guidance on what is meant by reasonable investment needs. Refer: *Commerce Act (Electricity Distribution Services Input Methodologies) Determination 2010*, 23 December 2010, clause 1.1.4.

49 It may not be reasonable for a supplier to address its financial hardship by altering its behaviour if a change in behaviour would, on balance, have a negative impact on the efficient running of the business.

50 Castalia, *Review of the Draft Decision on the Revised Initial Default Price-Quality Paths for Gas Pipeline Services: Report for Vector Limited*, December 2012, p26; Vector, *Submission to the Commerce Commission on Revised Draft Decision on the Initial Default Price-Quality Path for Gas Pipeline Services,* 6 December 2012, p10.

3.16.4 earnings before interest and tax to revenues (%);

3.16.5 earnings before interest, tax and depreciation to revenues (%);

3.16.6 earnings before interest and tax to funds employed (%);

3.16.7 earnings before interest and tax to regulated assets; and

3.16.8 internal financing ratio.

3.17 We therefore disagree with the submission from Castalia that it is not possible for suppliers to prove financial hardship under a default price-quality path.

4. Minimum standards for service quality

Purpose of this chapter

4.1 This chapter provides an overview of the minimum standards that we have set for service quality for the default price-quality path. It also explains why we set the quality standards in this way.

Response times to emergency

4.2 For the first default price-quality paths for gas pipeline services, we have set quality standards based on annual targets on response times to emergencies, which will supplement existing contractual arrangements and safety regulations. The specific targets are:[51]

4.2.1 all suppliers of gas pipeline services must take 180 minutes or less to respond to any emergency; and

4.2.2 gas distributors must take 60 minutes or less to respond to 80% of emergencies.

4.3 We will also monitor each supplier's reliability of supply, for the purposes of providing summary and analysis of information disclosed by suppliers under Part 4.[52]

Response times to emergencies is appropriate for the first default price-quality path

4.4 Without minimum standards for service quality, the constraint on each supplier's price or revenue might create an incentive to cut costs by compromising quality.[53] The development of robust quality standards also provides suppliers with an incentive to invest, and is therefore important to a successful regulatory regime.

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51 'Response Time' means the time elapsed from when an emergency is reported to a gas distribution or transmission business representative until the supplier's personnel arrive at the location of the emergency. Compliance with the quality standards will be assessed on an annual basis and suppliers must demonstrate that they did not exceed their target in each year of the regulatory period.

52 In developing these quality standards we have taken into account quality standards developed under Part 4A of the Gas Act 1992, and decisions under those gas governance regulations, as is required under s55I(2)(a). Since our revised draft decision was published, there have been no new recommendations, decisions or guidelines that have been under the Gas Act 1992 that may affect our decision.

53 Under s 53M(3) of the Act, quality standards may be prescribed in any way we consider appropriate.

4.5 While some submitters have argued that response times to emergencies are insufficient measures of quality, at present, it is the most effective standard we can put in place given the data available.[54] In contrast to the other measures proposed by submitters, these targets can be set independently of historical time series data. We have relied on industry knowledge instead.

4.6 These targets will provide the supplier with an incentive to promptly respond to emergencies, and provides a proxy for the responsiveness to the safety needs of consumers. Together with the safety regulations already placed on gas suppliers, the targets will therefore help to ensure that services are provided at a quality that consumers demand.[55] This approach has received support from submitters.[56]

4.7 There might be some circumstances in which suppliers are unable to meet the proposed standards through no fault of their own. For this reason we have set out circumstances in which suppliers can seek to exclude incidents from their compliance statements.[57]

Better standards for service quality will become apparent over time

4.8 Once sufficient data has been disclosed under information disclosure regulation, we will look to develop robust reliability measures with assistance from gas suppliers, retailers and other interested parties.[58] We are encouraged by the submissions from retailers and gas suppliers that indicate a willingness to work with us to develop better quality measures in future.

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54 Refer, for example: Genesis, *Submission on Revised Draft Decision on the Initial Default Price-Quality Paths for Gas Pipeline Services*, 3 December 2012, pp1-2.

55 Refer: s 52A(1)(b) of the Act.

56 Refer, for example: Gasnet, *Submission on Revised Draft Decision on the Initial Default Price-Quality Paths for Gas Pipeline Services*, 7 December 2012, p9; MGUG, *Submission on Revised Draft Decision on the Initial Default Price-Quality Paths for Gas Pipeline Services*, 7 December 2012, p3.

57 Further information can be found in the accompanying paper *Compliance requirements for the default price quality paths for gas pipeline services.*

58 A number of factors will need to be taken into consideration, including the concern raised by Powerco that SAIDI and SAIFI have a weak relationship to investment in gas networks. Powerco, *Draft Decision on Initial DPPs for Gas Pipeline Businesses*, 7 December 2012, p18.

4.9 However, we currently have very little data to establish appropriate targets for reliability. If we were to set targets in the absence of robust data, then we would risk placing perverse incentives on suppliers. In particular, if the targets were set too high, then suppliers would be forced to breach their quality standards, or make unnecessary investments in their networks.[59]

4.10 In our view, reliability is the most important quality measure for us to develop for future resets.[60] The Major Gas Users Group agreed that in future we need to develop quality standards based on the appropriate level of reliability for each individual supplier.[61] We will also consider the alternative measures of quality that have been suggested by submitters, including gas pressure and odorisation.

4.11 In more mature regimes, financial rewards and penalties are imposed when a supplier provides services at a quality that differs from the target. However, this would only be possible in the longer term, once we have confidence in the targets themselves.

Other mechanisms will contribute to a safe and reliable supply of gas

4.12 Suppliers will also be subject to a number of other mechanisms that contribute to the provision of a safe and reliable supply of gas in New Zealand. Examples of existing mechanisms include:

4.12.1 safety regulations, including The Gas Governance (Critical Contingency Management) Regulations 2008; The Gas (Safety and Measurement) Regulations 2010; and The Health and Safety in Employment (Pipelines) Regulations 1999; and

4.12.2 contractual arrangements, including the Maui Pipeline Operating Code (MPOC); the Vector Transmission Code (VTC); the Gas Distribution Contracts Oversight Scheme.

4.13 While none of these mechanisms directly enforce reliability standards, an investment required to ensure safety will also help to increase the reliability of the network.

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59 Powerco highlighted that developing such measures will require considerable work to ensure the standards are appropriate. Powerco, *Draft Decision on Initial DPPs for Gas Pipeline Businesses*, 7 December 2012, p18.

60 Refer, for example: Powerco, *Draft Decision on Initial DPPs for Gas Pipeline Businesses*, 7 December 2012, pp18-19.

61 Major Gas Users Group, *Submission on Revised Draft Decision on the Initial Default Price-Quality Paths for Gas Pipeline Services*, 7 December 2012, p3.

5. Role of a customised price-quality path

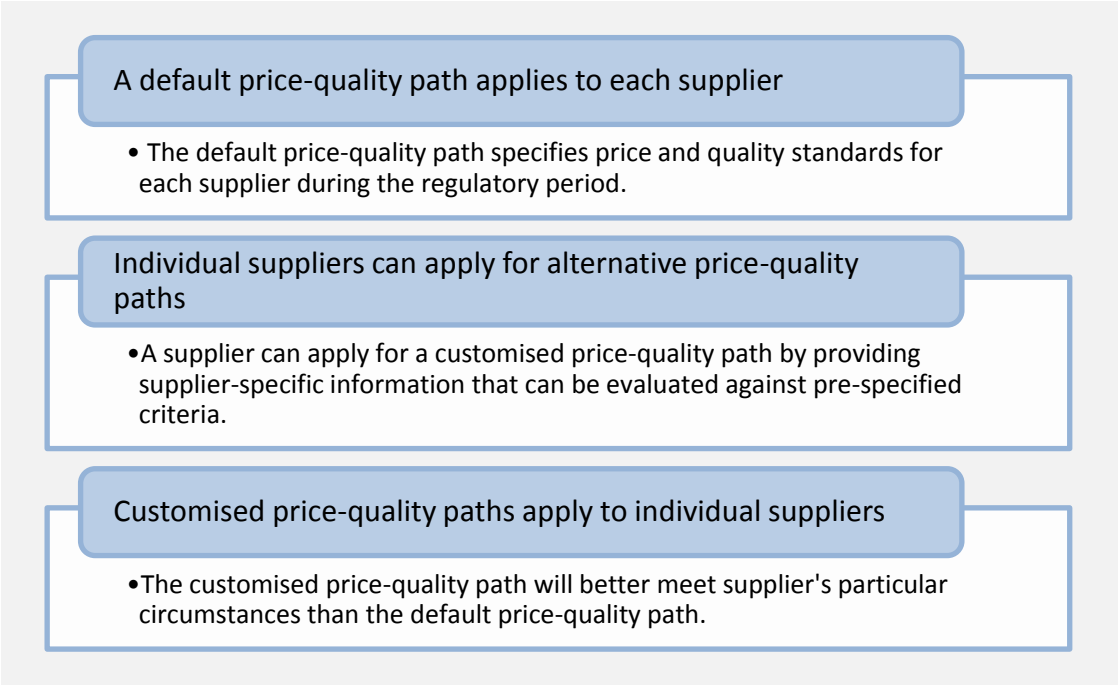
Purpose of this chapter

5.1 This chapter explains why, for individual suppliers, the ability to propose an alternative price-quality path may be important. We also set out the way in which the provision for customised price-quality paths impacted on our decisions when setting the default price-quality path.

Customised price-quality paths and particular circumstances

5.2 The process for proposing a customised price-quality path is a fundamental feature of default/customised price-quality regulation. It allows suppliers to have alternative price-quality paths that better meet their particular circumstances. This process is reflected in Figure 5.1.

Figure 5.1: Overview of default/customised price-quality regulation



5.3 Because customised price-quality paths are an option for suppliers, we did not provide an allowance for large scale investments when we set the default price-quality paths.[62] This is because, without scrutinising each supplier's forecast, we are unable to determine whether higher prices are justified.

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62 Refer, for example: MDL, *Commerce Commission Submission: Initial Default Price-Quality Path for Gas Pipeline Businesses*, 27 May 2011, section 6, p. 4; Vector Limited, *Submission to the Commerce*

5.4 The proposal process is important because it protects consumers against the risk of investment being deterred if suppliers expect to earn less than a normal return under the default price-quality path. This is because suppliers can apply for customised price-quality path if they consider that higher prices are required.[63]

5.5 By proposing a customised price-quality path, a supplier can have all of their information taken into account through audit, verification and evaluation processes. We will then be able to determine whether the proposed investments are required. We will also be able to form a view on whether the investments have been forecast to start at the right time, and at an appropriate price.

Views of regulated suppliers on customised price-quality paths

5.6 In response to our revised draft decision, regulated suppliers repeated arguments that customised price-quality paths would be a 'high risk' and 'costly' error correction mechanism if starting prices were set too low.[64] In their view, suppliers should be able to earn an appropriate return without having to either:

5.6.1 reduce investment under the default price-quality path; or

5.6.2 propose a customised price-quality path.

5.7 These submitters have therefore argued that we should include an 'additional allowance' to guard against the risk that our forecasts were likely to contain error, ie, that suppliers may expect to earn less than a normal return under the default price-quality path.[65]

Commission on Gas Transmission Form of Control and Investment, 27 May 2011; and MDL, *Submission on Gas DPP Draft Reasons and Determination*, 19 December 2011, p. 3.

63 We also note that due to the number of suppliers of gas distribution and transmission services, no prioritisation issues are likely to arise. All customised price-quality path proposals will therefore be considered at the time they are submitted.

64 Refer for example: MDL, *Submission on Revised Draft Decision on the Initial Default Price-Quality Paths for Gas Pipeline Services*, 7 December, p3; Vector, *Submission to the Commerce Commission on Revised Draft Decision on the Initial Default Price-Quality Path for Gas Pipeline Services*, 6 December 2012 p16 and pp31-32.

65 The relevant forecast error here is the difference between our forecasts and the forecasts that we would rely on if we could apply audit, verification and evaluation processes to the supplier's own information. Unlike the estimation error associated with determining the industry-wide cost of capital, such errors can be reduced by considering supplier-specific information in detail. By contrast, the more general risk of forecasting error is a risk that suppliers are routinely exposed to in workably competitive markets, eg, the risk of error when forecasting input prices. We therefore do not agree with Powerco's submission that the default price-quality path should include an allowance for the more general risk of forecast error.

Customised price-quality paths are not a 'high risk' option for suppliers

5.8 Having considered these submissions over a number of rounds of consultation, we have not been convinced that an additional allowance for all suppliers would better promote the Part 4 Purpose in the majority of cases. Our approach is already consistent with the intended operation of default/customised price-quality regulation:

5.8.1 As all submitters agree, default price-quality paths must be set in a relatively low cost way, and our approach best balances the outcomes set out in the Part 4 Purpose;[66]

5.8.2 A customised price-quality path is available where the default price-quality path does not meet the particular circumstances of the supplier.

5.9 Our view of the role of customised price-quality paths has been characterised as some sort of 'error correction' mechanism, but it simply reflects the scheme mandated by the Act. A customised price-quality path is a valuable option that is not available to consumers, eg, if starting price or revenue is set too high.

5.10 The fact that we can set a customised price-quality path lower than a default price-quality path does not imply that a customised price-quality path is a high risk option for suppliers. For example, it would be appropriate for a customised price-quality path to be lower than a default price-quality path if the supplier would otherwise expect to over-recover its costs.

5.11 Suppliers are therefore right that a customised price-quality path is not a 'one-way' bet. A supplier is only able to make one proposal in each regulatory period, and a proposal cannot be withdrawn once it has been submitted. The overall framework therefore protects consumers from opportunistic proposals by suppliers.

5.12 However, the framework also provides substantial protection for suppliers. All the rules, requirements and processes have been determined up-front, following more than two years of consultation. Suppliers must also agree to any variations to the input methodologies when a customised price-quality path is set.[67]

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66 As explained in Chapter 2, most of the time each supplier will expect to earn at least a normal return under the default price-quality path, but excessive profits will be limited.

67 Refer: s 53V(2)(c) of the Act.

5.13 Each supplier also has a form of 'merit' appeal to the High Court for:

5.13.1 the input methodologies determination applying to price-quality paths under s 52Z; and

5.13.2 a customised price-quality path determination.

5.14 In addition, for gas transmission services, the input methodologies for customised price-quality path proposals include mechanisms for dealing with 'contingent' and 'unforeseen' projects.

5.14.1 A contingent project is a major project that can be identified at the start of the term of the customised price-quality path, but which is contingent on a specific trigger event occurring.

5.14.2 An unforeseen project is a major project that would have been unforeseeable to a prudent operator of gas transmission services at the time a customised price-quality path proposal is submitted.

5.15 The provision for contingent and unforeseen projects is beneficial because it allows suppliers to make a proposal even if the need, timing, and/or cost of a project are uncertain or the project is unforeseen when the proposal is submitted. We therefore disagree with MDL's submission that a customised price-quality path proposal is risky because it needs to "cover all potential investments in advance".[68]

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68 MDL, *Submission on Revised Draft Decision on the Initial Default Price-Quality Paths for Gas Pipeline Services*, 7 December, p2.

A small additional allowance for some suppliers may benefit consumers in the long-term

5.16 Under specific conditions, however, a small additional allowance for certain suppliers may benefit consumers. Any additional allowance for suppliers would impact consumers in the following two ways.

5.16.1 An additional allowance for the supplier would reduce the probability that a customised price-quality path will be proposed, so the expected cost to consumers of a proposal would be reduced.[69]

5.16.2 If the supplier does not propose a customised price-quality path, then the additional allowance for the supplier would mean that consumers face higher prices under the default price-quality path.[70]

5.17 Our analysis of these two impacts is set out in Attachment H. In summary, we find that the second of the two impacts tends to dominate and, given that suppliers have the option of applying for a customised price-quality path, an additional allowance would be unlikely to benefit consumers in the long-term, or otherwise promote the specific outcomes set out in the Part 4 Purpose.

5.18 The exception to this is GasNet and Powerco, where we are satisfied that an additional allowance of $16k and $64k may be a cost-effective outcome. Further explanation of why these two suppliers qualify for an additional allowance can be found in Attachment H.

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69 The majority of the costs of a proposal can be passed onto consumers through higher prices. In particular, the audit, verification, and evaluation costs can be passed on, as well as the application fee. Therefore, if the cost of a customised price-quality path proposal was $1m, and an additional allowance reduced the probability of a proposal by 20%, then the expected cost of a proposal to consumers would fall by $200,000 as a result of introducing the additional allowance, ie, $1m multiplied by 20%. In practice, the probability of a customised price-quality path proposal will be determined in part by movements in the WACC. One way to prevent movements in the WACC from affecting the probability of a customised price-quality path proposal would be to apply the WACC from the current regulatory period for the opening years of the term of the customised price-quality path, before using a forward starting rate to estimate the WACC applying during the next regulatory period. We are currently considering whether to explore this proposal to potentially introduce the change in time for customised price-quality path proposals made during the first regulatory period.

70 For example, if the additional allowance is $1m then consumers will pay $1m more through regulated prices.

6. Compensation for over-recovery of revenue since 2008

Purpose of this chapter

6.1 This chapter explains our treatment of suppliers that have increased their weighted average price by more than inflation since 1 January 2008.

Insufficient justification for compensation

6.2 The Act states that a supplier may be required to temporarily lower its prices to compensate consumers for some or all of any over-recovery of revenues that occurred since 1 January 2008. More specifically:[71]

> if a supplier has increased its weighted average prices by more than the movement, or forecast movement, in the all groups index number of the New Zealand Consumer Price Index in the period beginning 1 January 2008 and ending with the date that the first default price-quality determination is made, the Commission may apply claw-back to the extent of requiring the supplier to lower its prices in order to compensate consumers for some or all of any over-recovery of revenues that occurred during that period

6.3 In our view, the statutory language clearly allows revenues to be recovered retrospectively back to 1 January 2008. We therefore disagree with the submission from GasNet that claw-back should not be applied because it would be retrospective.[72] However, claw-back has not been applied to any supplier.

Reasons why claw-back has not been applied to GasNet

6.4 GasNet was the only supplier that increased its prices faster than the rate of inflation since 1 January 2008, but we are not convinced that GasNet over-recovered its costs over this time. This is because further price increases still appear justified on the basis of GasNet's current and projected profitability.[73] Further, GasNet's costs in the past may have been higher, eg, the cost of capital for the industry was higher in the recent past than it is for the immediate future.

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71 Refer: s 55F(2) of the Act.

72 Gasnet, *Submission on Revised Draft Decision on the Initial Default Price-Quality Paths for Gas Pipeline Services*, 7 December 2012, paragraph 7.

73 We assessed past increases using information provided by suppliers in response to information gathering requests. These requests are discussed further in Attachment I.

6.5 In this particular scenario, it would only be consistent with the Part 4 Purpose to apply claw-back if the supplier is likely to have earned excessive profits as a result of its past pricing behaviour. Consequently, because claw-back is not mandatory in this situation, we have not applied claw-back to GasNet.[74]

[74] We therefore supported the view expressed by Powerco in its submission. Refer: Powerco, *Draft Decision on Initial DPPs for Gas Pipeline Businesses*, 7 December 2012, p15.

7. Responses to submissions about incentive mechanisms

Purpose of this chapter

7.1 This chapter provides responses to submissions on incentive schemes that could be applied under the default price-quality path.

Incentives to achieve efficiency gains

7.2 A supplier's incentive to maintain or achieve efficiency gains tends to diminish towards the end of the regulatory period, as the gains are shared with consumers when prices are adjusted.

7.3 This diminishing of incentives can be overcome by what are known as 'rolling incentive' schemes, where the benefits of efficiency gains are retained for a fixed number of years, irrespective of when they occurred during the regulatory period. We put in place an incremental rolling incentive scheme (IRIS) in the input methodologies applicable to customised price-quality paths in December 2010.[75]

7.4 Submitters have repeated requests that we put an IRIS and/or a similar capital expenditure incentive in place for the default price-quality path.[76] We intend to consider changing the IRIS for default/customised price-quality regulation for both electricity distribution and gas pipeline services. We will issue a Notice of Intention to begin work on changing the IRIS before the end of April 2013.

Staggered sharing mechanism

7.5 Suppliers have previously argued that we should put in place a staggered sharing mechanism.[77] The staggered sharing mechanism would result in a less pronounced reduction in a supplier's starting price or revenue if the supplier is currently earning above normal returns, eg, due to efficiency gains. Submissions have argued that this approach would provide greater incentives to make the gains in the first place.

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75 Refer: Commerce Commission, *Input Methodologies (Electricity Distribution Businesses and Gas Pipeline Businesses) Reasons Paper, 22 December 2010.*

76 MDL, *Cross-Submission on Revised Draft Decision on the Initial Default Price-Quality Paths for Gas Pipeline Services*, 21 December, p2; Powerco, *Draft Decision on Initial DPPs for Gas Pipeline Businesses*, 7 December 2012, p13 ; Vector, *Submission to the Commerce Commission on Revised Draft Decision on the Initial Default Price-Quality Path for Gas Pipeline Services*, 6 December 2012, p32.

77 Refer: Vector, *Efficiency impacts of Starting Price Adjustments – Stylised Example*, 19 December 2011; Vector, *Submission to the Commerce Commission on Revised Draft Decision on the Initial Default Price-Quality Path for Gas Pipeline Services*, 6 December 2012, p30.

7.6 We have not applied a staggered sharing mechanism at this reset because incentive mechanisms only provide benefits to consumers when they have been signalled to suppliers up-front. That is not the case for any efficiency gains that were achieved prior to the start of this regulatory period.

7.7 At present, we are not inclined to apply a staggered sharing mechanism in the future either. This is due to the adverse incentives that may be created; in particular, suppliers may have an incentive to artificially inflate their returns in the year prior to the adjustment.[78] Starting prices would consequently be higher than they would be otherwise.

7.8 Finally, as we noted in our revised draft decision, a staggered sharing mechanism may also serve to 'lock in' any excessive profits that would be earned in future if prices from before the introduction of Part 4 are continued.[79]

Incentives for innovation

7.9 Contact Energy submitted that more needs to be done in the default price-quality path to encourage suppliers to innovate.[80] In particular they suggested we look to develop something similar to the 'RIIO model' developed by the UK regulator Ofgem, where RIIO stands for: Revenue = Incentives + Innovation + Outputs.

7.10 We are unable to develop such a model in this reset because we do not have well developed output measures. However, in principle we agree that an incentives mechanism such as the RIIO model is a good way to encourage innovation. As discussed in Chapter 4, we will look to develop more robust quality standards for future resets which may be able to be used as output measures.

7.11 Once more robust quality standards are in place, we will consider developing complementary incentive mechanisms.

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78 For example, suppliers may have an incentive to make early payments for services used in that year, or to delay activities until the next period

79 Some businesses, for example, are likely to be earning relatively high returns at present, simply as a result of prices not yet having been adjusted following the publication of input methodologies.

80 Contact, *The Commerce Commission's Revised Draft Decision on the Initial Default Price Quality Paths for Gas Pipeline Services: Submission to Commerce Commission*, 7 December 2012, P6.

Attachment A: Summary of key inputs

Purpose of this attachment

A1 This attachment summarises the key inputs were used in the determination of starting price or revenue. The key inputs are:

A1.1 allowances for capital expenditure;

A1.2 allowances for operating expenditure;

A1.3 other line items used in our modelling; and

A1.4 forecasts of revenue growth.

A2 These inputs are applied in Step Two of Chapter 2.

Allowances for capital expenditure

A3 The allowances for capital expenditure rely on each supplier's forecasts of network and non-network investment, but limit the increase relative to their average historic expenditure. We have treated expenditure on network and non-network investments separately.

A3.1 Network investment is expenditure on assets that form part of the distribution or transmission network.

A3.2 Non-network investment is expenditure on assets that are employed in supplying regulated services but which do not form part of the distribution or transmission network.

A4 Table A1 shows the combined amount of capital expenditure that we have allowed each supplier in each year, expressed in current prices.

Table A1: Allowances for capital expenditure

(2012 to 2018 in current prices $ 000)

Year ending	Distribution			Transmission	
	GasNet	Powerco	Vector	MDL	Vector
2012	655	11,478	21,066	133	11,898
2013	693	11,317	24,983	302	16,280
2014	723	11,378	28,206	2,794	25,951
2015	737	12,750	18,418	209	11,327
2016	835	13,154	14,947	145	10,669
2017	852	13,550	15,157	211	10,558
2018	868	13,817	15,455		10,766

A5 The values shown in Table A1, and throughout this attachment, correspond to the years that suppliers used when providing cost information. This means that:

A5.1 for MDL, each year-end is 31 December; and

A5.2 for all other suppliers, each year-end is 30 June.

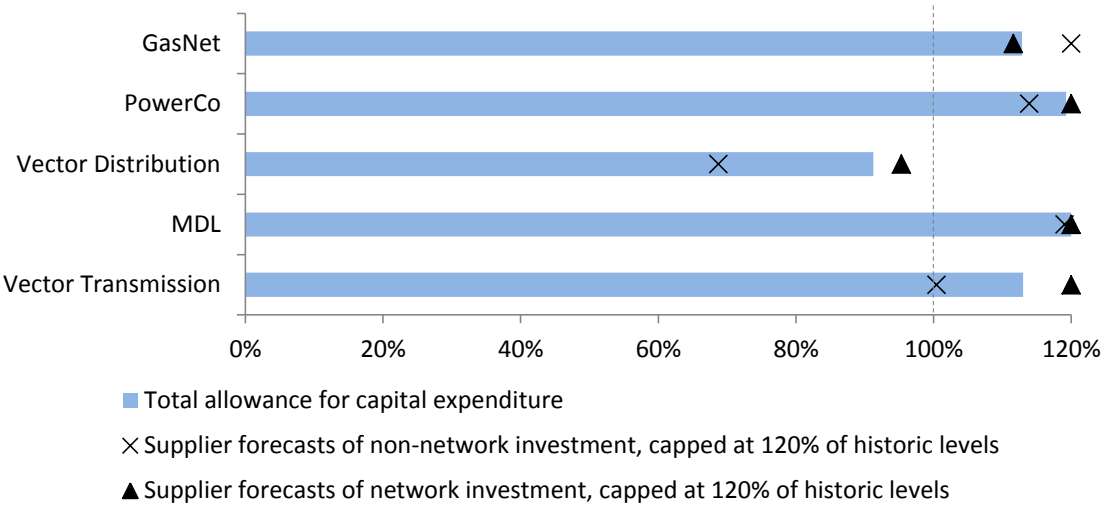
A6 We have included the 2018 year for all suppliers other than MDL because the regulatory period ends three months after the end of their 2017 year. In our modelling the 2018 year is weighted to reflect the fact that only one quarter of the year is captured by the regulatory period.

Capital expenditure allowances compare favourably with historic levels of expenditure

A7 Suppliers are allowed their own forecasts of network and non-network investments, up to 120% of their historic average for each type of expenditure. Figure A1 shows the average allowance relative to each supplier's historic expenditure. It shows the total allowance, as well as the allowances for network investments and non-network investments.

Figure A1: Allowances for capital expenditure relative to historic expenditure

(2012 to 2017 relative to 2008 to 2011 in constant 2011 prices)



A8 Figure A1 shows that the allowances for capital expenditure are based on supplier forecasts of network and non-network investments. For most suppliers, this provides a significant increase in investment relative to historic levels of expenditure. The only exception is Vector Distribution. This is because Vector Distribution has forecast a reduction in investment relative to historic levels.

Comparison with supplier forecasts

A9 Table A2 compares the allowances for capital expenditure to each supplier's own forecasts of capital expenditure for 2012 to 2017. These figures are all in 2011 constant prices.

Table A2: Allowances for capital expenditure and supplier forecasts

(Total for 2012 to 2017 in 2011 constant prices)

		Distribution			Transmission	
		GasNet	**Powerco**	**Vector**	**MDL**	**Vector**
Allowance ($ 000)	Network	3,603	61,890	104,068	3,576	56,693
	Non-network	666	8,089	13,585	50	26,311
	Total	**4,269**	**69,978**	**117,653**	**3,626**	**83,004**
Supplier forecasts ($ 000)	Network	3,603	62,207	104,068	53,446	109,811
	Non-network	741	8,089	13,585	50	26,311
	Total	**4,344**	**70,296**	**117,653**	**53,496**	**136,122**
Difference ($ 000)	Network	-	318	-	49,870	53,118
	Non-network	75	-	-	-	-
	Total	**75**	**318**	**-**	**49,870**	**53,118**

A10 The differences in Table A2 show how much greater supplier forecasts are than the allowance. The allowance is $49.8m less than MDL's forecasts and $53m less than Vector Transmission's forecast.

A11 The forecasts of network investment for both transmission businesses are contingent on a small number of very large uncertain projects, including investments in the Whitecliffs and Pukearuhe pipelines. MDL's forecast of network investment for this regulatory period is almost 19 times larger than its historic spend. Vector Transmission's forecast network investment is more than three times larger.

A12 For most suppliers, the allowance for expenditure on non-network investments is equal to their forecasts. Only GasNet has been allowed less than its forecast.

Allowances for operating expenditure

A13 The allowances for operating expenditure reflect our forecasts for each supplier. Table A3 shows the amount of operating expenditure we have included in our modelling for each supplier in each year, expressed in current prices.[81]

[81] As noted in paragraphs A5 to A6 MDL's year end is December, whereas it is June for all other suppliers. The 2018 year is included for all suppliers except MDL to cover the three months between 30 June 2017 and 30 September 2017.

Table A3: Allowances for operating expenditure

(2012 to 2018 current prices $ 000)

Year ending	Distribution			Transmission	
	GasNet	Powerco	Vector	MDL	Vector
2012	1,575	15,866	20,078	9,050	31,123
2013	1,655	16,282	20,763	12,341	31,913
2014	1,794	16,791	21,575	12,654	32,862
2015	1,771	17,318	22,420	13,002	33,812
2016	1,833	17,928	23,381	13,350	34,849
2017	1,889	18,467	24,262	13,683	35,632
2018	1,950	19,058	25,221		36,478

A14 We have modelled operating expenditure using the following three factors.

A14.1 Network scale – the scale of the network may affect operating expenditure because the volume of service provided will change.[82]

A14.2 Operating efficiency – changes in operating efficiency will affect the amount of operating expenditure needed to provide a given level of service.

A14.3 Input prices – changes in input prices will affect the cost of providing a given level of service over time.

A15 We now explain how each of these factors affects the allowance for operating expenditure. We also compare our allowance to each supplier's forecast.

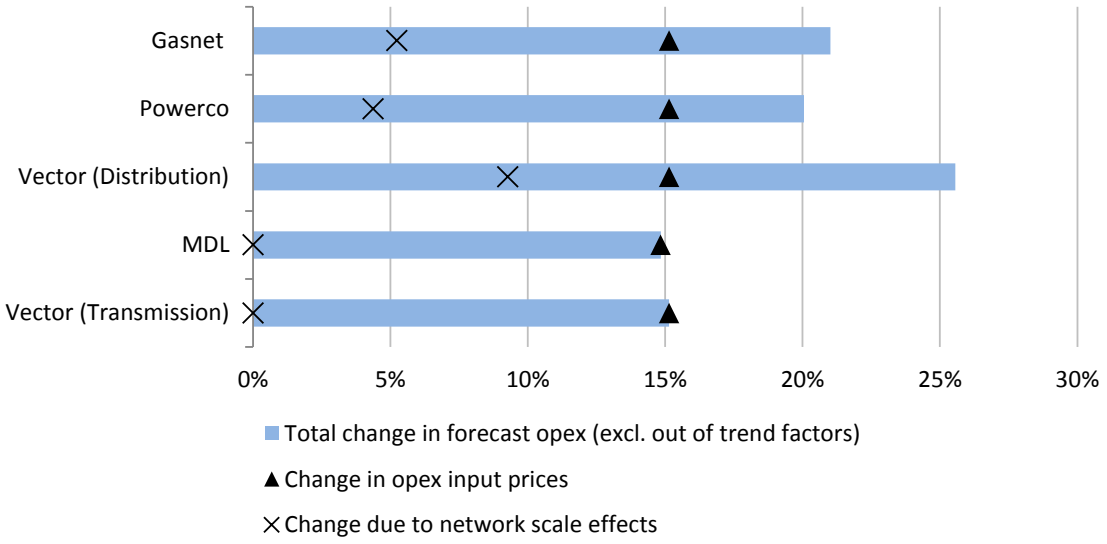
Main drivers of operating expenditure for each supplier

A16 Figure A2 shows the cumulative growth from 2012 to 2017 in each supplier's allowance for operating expenditure that is attributable to the three factors outlined above.[83] The impact of changes in input prices and scale effects are also shown separately.

82 For example, every additional kilometre of gas line constructed may require maintenance, thereby increasing the required operating expenditure.

83 We have used 2017 as the final year in this figure for consistency between suppliers as forecasts for 2018 were not developed for MDL, as noted in paragraphs A5 to A6.

Figure A2: Cumulative growth in operating expenditure from 2012 to 2017



A17 The largest impact is from the forecast increases in input prices. The impact of input prices for MDL is slightly different to all other suppliers because we have used input prices relating the year ending December to match its pricing year.

A18 The driver showing the greatest variation between suppliers is the impact of forecast changes in network scale. Vector Distribution's operating expenditure is forecast to be impacted the most by changes in network scale. For transmission businesses, operating expenditure is assumed to be unrelated to scale.[84]

A19 Figure A2 excludes the effect of several 'out of trend' factors that are in our model. These factors are:

A19.1 increases in insurance costs from natural disasters;

A19.2 compressor fuel costs for MDL; and

A19.3 certain compliance costs for GasNet.

A20 Figure A2 also does not show the impact of changes in operating efficiency, because we have assumed that there will be no change in operating efficiency relative to the rest of the economy.

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84 Refer to paragraphs C16 to C19 in Attachment C for further explanation.

Comparison with supplier forecasts

A21 Table A4 compares the allowances for operating expenditure to each supplier's forecast. It compares these forecasts on a cumulative basis over the years ending 2012 to 2017. The values are expressed in 2011 constant prices.

Table A4: Operating expenditure allowance compared to supplier forecast

(Total for 2012 to 2017 in 2011 constant prices)

	Distribution			Transmission	
	GasNet	**Powerco**	**Vector**	**MDL**	**Vector**
Our allowance ($ 000)	9,685	94,547	121,954	68,290	184,422
Supplier forecast ($ 000)	9,492	96,377	139,651	82,175	244,085
Difference ($ 000)	-193	1,830	17,697	13,885	59,663
Difference	-2.0%	1.9%	14.5%	20.3%	32.4%

A22 Most supplier forecasts exceed our allowances, particularly for Vector Transmission and MDL. This is because the forecasts of operating expenditure by these suppliers are likely to reflect the uncertain investments discussed in paragraph A11.

Other line items in our modelling

A23 In this section we set out the values used for the other line items in our modelling, specifically:

A23.1 the cost of capital;

A23.2 the forecast rate of inflation for predicting asset revaluations;

A23.3 other regulatory income; and

A23.4 additional allowances.

A24 These factors are further explained in Attachment D and Attachment H.

Cost of capital for the regulatory period is 7.44%

A25 The weighted average cost of capital (WACC) that we have used in reaching this decision was 7.44%, which was our estimate of the WACC as at 1 December 2012. We published this estimate of the WACC on 20 December 2012.[85]

A26 Table A5 sets out the key parameters from the WACC determination.

Table A5: Main components of the Vanilla WACC

Parameter	Value	Parameter	Value
Risk-free rate (5 years)	2.88%	Debt premium (5 years)	2.15%
Equity beta	0.79	Tax adjusted market risk premium	7.0%
Average corporate tax rate	28%	Average investor tax rate	28%
Debt issuance costs (5 years)	0.35%	Leverage	44%
Standard error of debt premium	0.0015	Standard error of WACC	0.012
Cost of debt (5 years; pre-corporate tax)	5.38%	Cost of equity (5 years)	7.60%
Vanilla WACC (5 years, midpoint)		5.38% x 0.44 + 7.60% x (1-0.44) = 6.63%	
Vanilla WACC (5 years, 75th percentile estimate)			7.44%

A27 The WACC that we have relied on is the 75th percentile Vanilla WACC. The corresponding midpoint estimate is 6.63%.

Measures of inflation used when predicting changes in asset values

A28 Consistent with the input methodologies for asset valuation, we used a mix of actual and forecast data to predict inflation-indexed changes in asset values. In particular:

A28.1 the actual data on the CPI was the latest available as at the date the WACC was determined, ie, the SE9A series published by Statistics New Zealand in September 2012; and

A28.2 the forecast data was sourced from the Monetary Policy Statement from 13 September 2012, and applies from the December 2012 quarter to the March 2015 quarter.

A29 The CPI data that we used to predict changes in asset values are shown in Table A6.

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85 Refer: *Cost of capital determination for default price-quality paths for suppliers of gas distribution and gas transmission services, and customised price-quality path proposals made by Vector Limited and GasNet Limited [2012] NZCC 38*, 20 December 2012.

Table A6: CPI adjustment for revaluations

Year ending	All suppliers except MDL	MDL
2010	1.67%	1.99%
2011	3.21%	1.85%
2012	0.95%	1.90%
2013	2.14%	1.69%
2014	2.01%	2.17%
2015	2.21%	2.21%
2016	2.11%	2.11%
2017	2.00%	2.00%
2018	2.00%	

A30 The series in Table A6 converges towards the target rate of inflation for the Reserve Bank of New Zealand. At present, the target rate is 2% within a symmetric range of 1% to 3%.

Other regulated income

A31 Other regulated income is income from the provision of regulated services that are not recovered through line charges. The other regulatory income that we have included in our modelling for 2012 is:

A31.1 zero for MDL, Vector Distribution, and Vector Transmission;

A31.2 $146,000 for Powerco; and

A31.3 $13,000 for GasNet.

A32 In subsequent years, we have adjusted these figures for inflation.

Forecasts of revenue growth in constant prices

A33 This section shows the forecasts that we have made of each supplier's revenue over the regulatory period. First we set out the forecasts of inflation we have used in predicting changes in revenue. We then set out the forecasts we have made of revenue growth in constant prices.

Forecast of inflation used when predicting changes in revenue

A34 Each supplier's revenue is affected by changes in inflation.

A34.1 For distribution businesses, the CPI-0% constraint is the average price that each supplier is allowed to charge before pass-through costs and recoverable costs are taken into account.

A34.2 For transmission businesses, the CPI-0% constraint impacts on the revenue allowed before pass-through costs and recoverable costs are taken into account.

A35 The inflation forecasts that we relied on are shown in Table A7.

Table A7: CPI adjustment for changes in revenue

Year ending	All suppliers except MDL	MDL
2014	1.30%	1.36%
2015	1.92%	1.91%
2016	2.03%	2.17%
2017	2.24%	2.21%
2018	2.13%	

A36 The figures shown in Table A7 are different to the inflation figures shown in Table A6 because they are calculated on a slightly different basis. In particular, the values shown in Table A7 are calculated consistent with the way the price or revenue path will be updated during the regulatory period.[86] However, the values in Table A6 are calculated consistent with the input methodology for rolling forward asset values during the regulatory period.[87]

86 The price or revenue path is updated for CPI during the period using a measure of the CPI that is lagged by 18 months. In addition, changes in the index are calculated by comparing the four quarter average for one year with the four quarter average for the previous year.

87 Asset values will be rolled forward during the regulatory period by applying a measure of the CPI that is not lagged. In addition, changes in the CPI are measured by comparing the value of the index in one quarter with the value of the index a year prior.

Our forecasts of revenue growth in constant prices

A37 The forecast of each supplier's revenue growth in constant prices is shown in Table A8. This table shows the revenue growth that is forecast to occur as a result of changes in the quantities billed by each supplier.[88]

Table A8: Revenue growth forecasts

(2012 to 2018 in 2011constant prices)

Year ending	Distribution			Transmission	
	GasNet	Powerco	Vector	MDL	Vector
2012	-0.53%	0.08%	0.55%	0%	0%
2013	-0.53%	0.08%	0.55%	0%	0%
2014	-0.53%	0.08%	0.55%	0%	0%
2015	-0.53%	0.08%	0.55%	0%	0%
2016	-0.53%	0.08%	0.55%	0%	0%
2017	-0.53%	0.08%	0.55%	0%	0%
2018	-0.53%	0.08%	0.55%		0%

A38 Revenue from transmission services is forecast to be stable in constant prices over the regulatory period.[89] This is because transmission services are subject to a revenue cap, under which they are not allowed to increase revenue by more than inflation.

Main drivers of revenue growth in constant prices

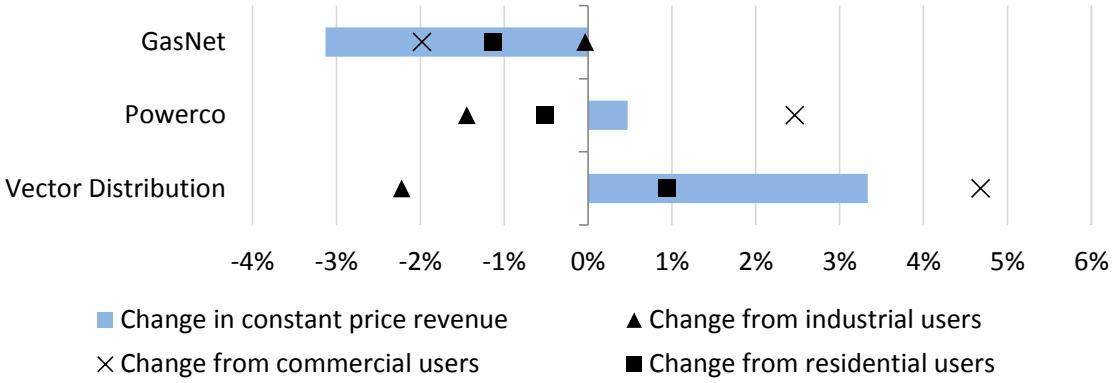
A39 Figure A3 presents the forecast cumulative change in constant price revenue for gas distributors, broken down by user type.

88 Details of how these amounts are calculated can be found in Attachment E.

89 However, we have developed forecasts of revenue in constant prices for calculating the 'ΔD' term used when suppliers set prices. Refer to Attachment E.

Figure A3: Constant price revenue growth forecasts

(Total for 2012 to 2017, in 2011 prices)



A40 The overall growth of revenue in constant prices is forecast to be moderate or declining for all three distribution businesses over the regulatory period. Vector Distribution's constant price revenue is forecast to increase by 3%, Powerco's is forecast to be flat and GasNet's is forecast to decline by around 3% from 2012 to 2017.

A41 The driver of forecast revenue growth differs between distributors. For example, revenue from commercial users is forecast to reduce by around 2% in constant prices on GasNet's network, but it is forecast to increase by around 2.5% for Powerco and by 4.5% for Vector Distribution.

Attachment B: Allowances for capital expenditure

Purpose of this attachment

B1 This attachment provides an overview of, and reasons for, our approach to each supplier's allowances for capital expenditure. These allowances are applied in Step One of our approach to setting starting price or revenue, which is explained in Chapter 2.

Supplier forecast and allowances for capital expenditure

B2 Within certain limits, we relied on each supplier's forecast to model their capital expenditure. Each supplier's forecast provided a good starting point because suppliers have access to the best information on:

B2.1 current and future demand drivers for its services;

B2.2 how to efficiently meet this demand; and

B2.3 the costs incurred in providing the services.

B3 In addition, the risk to consumers of providing suppliers with a higher than necessary allowance for capital expenditure is lower than it is for operating expenditure. This is because, compared to operating expenditure, capital expenditure has a relatively minor impact on allowable revenues.

We limited supplier forecasts

B4 However, we applied a limit to each supplier's forecast because:

B4.1 by relying on each supplier's forecast, we provided suppliers with an incentive to systematically bias their forecast to increase their starting price or revenue, eg, by adopting low risk forecasting assumptions; and

B4.2 applying a limit is consistent with the overall regulatory regime where customised price-quality paths are the mechanism to address material step change in investment.[90]

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[90] The option of using the supplier's forecast (with no limit) was rejected for several reasons. First, it creates a strong incentive for the supplier to incorporate low risk assumptions or use approaches that result in systematically biased modelling only countered by the incentives created by summary and analysis. Second, it may reduce the incentives to achieve efficiencies in capital expenditure (a supplier can earn an acceptable return without achieving efficiencies). Third, it may allow the supplier to undertake more capital expenditure than is required and valued by customers.

B5 The limit was applied to the forecast that each supplier provided in response to an information gathering request. This data was supplied in constant prices for the years ending 2008 to 2011.[91]

Capital expenditure allowance is split into two categories

B6 We have separated the allowances for capital expenditure into two categories, one for network investments and another for non-network investments.

B6.1 Network investments involve assets that form part of the distribution or transmission network.

B6.2 Non-network investments involve assets employed in supplying regulated services that do not form part of the distribution or transmission network.

B7 To determine the total allowance for capital expenditure we combined the forecasts for each category of investment in each year. We then adjusted the capital expenditure series to reflect the impact of future changes in input prices.

Main change since our revised draft decision

B8 The main change since our revised draft decision is that we now apply the same approach to set the allowance for network and non-network investments. Both types of expenditure are based on supplier forecasts, with a limit on increases from historic expenditure.

Size and application of limit on supplier forecasts

B9 We limited each supplier's forecast of network and non-network investments when the increase exceeded 20% of their historic average. The historic average was calculated over the period 2008 to 2011. Any supplier that considers expenditure above the limited amount is necessary may consider making a customised price-quality path proposal.

Size of limit applied to forecasts of network investments

B10 For distribution businesses the 20% limit reflects the typical year-on-year fluctuations in capital expenditure. The 20% cap is equivalent to the combined effect of an increase of 5% per year for each of the four years of this regulatory period. For this first default price-quality path, the only distribution business whose forecasts are affected by the limit is Powerco, who submitted in support of the 20% limit.[92]

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91 Commerce Commission, *Notice to Supply Information to the Commerce Commission under section 53ZD of the Commerce Act 1986*, 22 June 2012.

92 Powerco, *Draft Decision on Initial DPPs for Gas Pipeline Businesses*, 7 December 2012, p2.

B11 For transmission businesses, we have applied our judgement to determine the appropriate limit. Submissions highlighted that transmission investments are irregular.[93] This means it is not possible to create a reliable limit based on observed fluctuations. In our view the 20% limit will generally provide for 'business as usual' levels of investment, but not large scale investments.

Same limit applied to forecasts of non-network investments

B12 The limit for non-network investment has also been set at a maximum of a 20% increase on historic levels. This moves all suppliers closer to their forecasts (compared to our revised draft decision which set non-network investment equal to historic expenditure). This is in response to submissions that requested we apply the same approach to non-network investment as for network investment.[94]

B13 We could see no reason for allowing a larger percentage limit for non-network investment than for network investment, as was requested in submissions.[95] The reasons outlined above for network investments also apply to non-network investments.

Scaling of each supplier's forecast if the limit was exceeded

B14 We scaled back a supplier's forecast if it exceeded the limits we set. First, we determined the proportionate reduction needed to bring it to the limit. We then applied the same proportional reduction each year to preserve the time profile. This means we use as much information in the supplier's forecasts as possible.

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93 CEG, *Default Price-Quality Path for Gas Pipelines*, November 2012, p7; MDL, *Submission on Revised Draft Decision on the Initial Default Price-Quality Paths for Gas Pipeline Services*, 7 December, p4; Vector, *Submission to the Commerce Commission on Revised Draft Decision on the Initial Default Price-Quality Path for Gas Pipeline Services*, 6 December 2012, p16.

94 GasNet*, Submission on Revised Draft Decision on the Initial Default Price-Quality Paths for Gas Pipeline Services*, 7 December 2012, p10; MDL, *Cross-Submission on Revised Draft Decision on the Initial Default Price-Quality Paths for Gas Pipeline Services*, 21 December, p1.

95 GasNet*, Submission on Revised Draft Decision on the Initial Default Price-Quality Paths for Gas Pipeline Services*, 7 December 2012, p10; MDL, *Cross-Submission on Revised Draft Decision on the Initial Default Price-Quality Paths for Gas Pipeline Services*, 21 December, p1.

Forecast changes in input prices

B15 To set each supplier's allowance for capital expenditure, we had to inflate the allowance by an input price index. This ensures that suppliers are not penalised for the impact of increases in input prices, which are generally beyond their control. The index we have used is the Capital Goods Price Index for all groups.

B16 We used the Capital Goods Price Index for all groups because:

B16.1 it is the most dependable source of information about future changes in capital expenditure;

B16.2 it provides a good proxy for industry-specific indices; and

B16.3 industry-specific indices are hard to forecast individually.

B17 The New Zealand Institute of Economic Research provided us with the latest available actual and forecast changes in the Capital Goods Price Index. These changes were for the period 2012 to 2018.[96]

Other options inappropriate

B18 In our view, none of the alternative approaches proposed by submitters would have been appropriate for the first default price-quality path. The proposed alternative approaches were:

B18.1 removing major projects from the forecasts by transmission businesses;

B18.2 setting capital expenditure equal to depreciation;

B18.3 applying an investment test; and

B18.4 using an approach known as 'menu regulation'.

B19 We rejected these approaches for the reasons set out below.

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[96] Under commercial terms between the Commission and NZIER, forecast CGPI may be shared with the industry. Suppliers may request this information from the Commission. We have not used the NZIER forecasts released on 26 February 2013, as this release was too close to the date or determination was published on 28 February 2013.

Removing major projects from a supplier's forecast is insufficient

B20 Even after excluding major investments, the forecasts of capital expenditure by both transmission businesses represent a significant increase over historic expenditure. We have therefore not accepted MDL's submission to make decisions on capital expenditure at the investment programme level.[97]

Depreciation is not a good measure of actual capital expenditure

B21 We have not calculated the allowance for capital expenditure based on depreciation because we do not consider that it would reflect a realistic investment profile. We disagree with submissions from CEG (on behalf of Vector) and MDL that this approach would be the best proxy of each supplier's capital investments over the regulatory period.[98]

B22 The accounting depreciation in our model is unlikely to reflect actual capital expenditure in any given regulatory period. This is because, while depreciation spreads the cost of an asset over its lifetime, the actual replacement of an asset occurs infrequently, particularly for transmission businesses.

Investment tests are provided for under a customised price-quality path

B23 Consistent with the low cost intent of a default price-quality path we have not undertaken a detailed review/verification of the supplier's forecasts. MDL submitted that major capital investments should be subject to an investment test.[99] The development and application of an investment test would be inconsistent with both the low cost purpose of a default price-quality path and our approach to projecting capital expenditure.

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97 MDL, *Submission on Revised Draft Decision on the Initial Default Price-Quality Paths for Gas Pipeline Services*, 7 December, p4.

98 CEG, *Default Price-Quality Path for Gas Pipelines*, November 2012, pp8-11; Vector, *Submission to the Commerce Commission on Revised Draft Decision on the Initial Default Price-Quality Path for Gas Pipeline Services*, 6 December 2012, p5; MDL, *Cross-Submission on Revised Draft Decision on the Initial Default Price-Quality Paths for Gas Pipeline Services*, 21 December, p1.

99 MDL, *Submission on Revised Draft Decision on the Initial Default Price-Quality Paths for Gas Pipeline Services*, 7 December, p1.

B24 Under a customised price-quality path, the large investments proposed by MDL would be appropriately scrutinised. MDL also raised a concern about uncertain projects. For gas transmission businesses, a customised price-quality path also includes a mechanism for contingent projects, or uncertain projects, should investment needs change over the regulatory period.[100]

Menu regulation may be suitable in the future

B25 While we see the merit of menu regulation, we do not consider it possible to establish in time for this first default price-quality path, as requested by Castalia (on behalf of Vector).[101] Menu regulation incentivises suppliers to provide truthful forecasts. Suppliers get an increasing financial reward the closer their forecast expenditure is to actual expenditure.

B26 We will consider alternative approaches to setting allowances for capital expenditure, including menu regulation, for the next reset. As noted by Castalia, our current approach to capital expenditure will provide perverse incentives if used again at the next reset. This is because suppliers know they would be able to pad their forecasts by adding the difference between their average historic capital expenditure and the amount implied by the limit.[102]

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100 Refer: Commerce Commission, *Gas Transmission Services Input Methodologies Determination 2012*, 15 November 2012, pp120-121.

101 Castalia, *Review of the Draft Decision on the Revised Initial Default Price-Quality Paths for Gas Pipeline Services: Report for Vector Limited*, December 2012, pp14-18; Vector, *Submission to the Commerce Commission on Revised Draft Decision on the Initial Default Price-Quality Path for Gas Pipeline Services*, 6 December 2012, p17.

102 Castalia, *Review of the Draft Decision on the Revised Initial Default Price-Quality Paths for Gas Pipeline Services: Report for Vector Limited*, December 2012, p14.

Summary of information sources

B27 Table B1 sets out the information sources that we relied on when setting each supplier's allowance for capital expenditure.

Table B1: Information for modelling capital expenditure

Item	Information used (supplier-specific unless otherwise stated)	Source
Historic average	Annual levels of network investment (current prices) Annual levels of non-network investment (current prices)	Information gathering request and Commission calculations
Supplier forecast	Forecast of network investment (constant prices) Forecast of non-network investment (constant prices)	Information gathering request
Input prices	Capital Goods Price Index (all groups)	New Zealand Institute of Economic Research

Attachment C: Allowances for operating expenditure

Purpose of this attachment

C1 This attachment provides an overview of, and reasons for, our approach to each supplier's allowance for operating expenditure. This allowance is applied in Step One of our approach to setting starting price or revenue, which is explained in Chapter 2.

Forecasts of operating expenditure

C2 The allowances for operating expenditure are based on our own forecast. We have not relied on each supplier's forecasts, because of the risk to consumers of providing suppliers with a higher than necessary allowance. This risk is higher for operating expenditure compared to capital expenditure because it has a larger impact on allowable revenues.

Our forecast starts from a single base year

C3 Our forecast of operating expenditure starts from a base year, which is then projected forward on the basis of three main drivers. We have adopted this approach because operating expenditure in the gas pipeline industry is typically recurring, ie, likely to be repeated regularly, and influenced by certain known and predictable factors.

Three main drivers of future operating expenditure

C4 It is appropriate to model operating expenditure using the following three main drivers:

C4.1 network scale – the scale of the network may affect operating expenditure because the volume of service provided will change;[103]

C4.2 operating efficiency – changes in operating efficiency will affect the amount of operating expenditure needed to provide a given level of service; and

C4.3 input prices – changes in input prices will affect the cost of providing a given level of service over time.

C5 We also made a number of adjustments to reflect other factors that were not otherwise captured. These other factors comprise: the increased insurance costs for all suppliers, compressor fuel costs for MDL, and compliance costs for GasNet.

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[103] For example, every additional kilometre of gas line constructed may require maintenance, thereby increasing maintenance.

Main changes since the revised draft decision

C6 The main changes that we have made since our revised draft decision are:

C6.1 adopting the estimated impact of network scale on operating expenditure for distribution businesses from Castalia's analysis;

C6.2 updating the insurance information for some suppliers;

C6.3 including an allowances for the costs of compressor fuel for MDL; and

C6.4 including an allowance for the additional costs of compliance faced by GasNet.

C7 We also removed the costs of appeals and unaccounted for gas from operating expenditure in the base year.

Operating expenditure in the base year

C8 For this default price-quality path we have used the year ending 2011 as the base year. This is the most recent data available that is consistent across all suppliers. Both Powerco and MDL would have had difficulty providing data for the year ending 2012.[104] We also wanted to limit the burden on suppliers of providing additional information, as we already had data on the year ending 2011.

C9 These factors outweigh submissions received on the matter advocating alternative approaches. Vector and Castalia requested that we use the year ending 2012 as the base year.[105] MDL requested that we use the average of the three most recent years as the base year.[106]

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104 MDL would not have been able to provide data on the year ending 2012 because its pricing year ends in December, and Powerco indicated that they would have difficulty getting access to auditors in the required timeframes, Powerco, *Cross submission on submissions to the Draft Decision on Initial DPPs for Gas Pipeline Businesses*, 21 December 2012, p4.

105 Castalia, *Review of the Draft Decision on the Revised Initial Default Price-Quality Paths for Gas Pipeline Services: Report for Vector Limited, December 2012*, pp11-12; Vector, *Submission to the Commerce Commission on Revised Draft Decision on the Initial Default Price-Quality Path for Gas Pipeline Services*, 6 December 2012, p8.

106 MDL, *Submission on Revised Draft Decision on the Initial Default Price-Quality Paths for Gas Pipeline Services*, December 2012, p6.

Costs of appeals against input methodologies were removed

C10 We have removed from the base year the legal costs of appeals against input methodology determinations under Part 4 of the Act. This adjustment affected Vector Distribution ($108,278), Vector Transmission ($108,278), and Powerco ($13,957).

C11 In our view, s 52T(1)(c)(i) of the Act clearly shows that Parliament had concerns about the costs of appeals of input methodology determinations, or appeals under s 91 or s 97, being borne by consumers. We therefore did not specify such appeal costs as 'pass-through costs' or 'recoverable costs' when we determined input methodologies in December 2010.

C12 In reaching this view, we have considered the arguments put forward by both Powerco and Vector in response to our consultation paper on 8 February 2013.

C12.1 We do not agree with Powerco's and Vector's submissions that the prohibition in s 52T(1)(c)(i) is relevant only to 'pass-through costs' and not operating costs. Given that Parliament has clearly expressed its concern regarding the recovery of appeal costs from consumers, and in line with the Part 4 Purpose, we have not provided an explicit allowance for appeal costs in forecast operating expenditure.

C12.2 Nor do we agree with Powerco's and Vector's submissions that this treatment will restrict their right to appeal.[107] They can appeal input methodologies or other determinations if they wish. However, all other things being equal, and depending on the level of materiality of such costs, suppliers may need to make savings in other areas. Such an incentive is consistent with promoting the Part 4 Purpose.[108]

C13 We therefore consider it appropriate to exclude the appeal costs from the base year level of operating expenditure.

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[107] Powerco*, Powerco Submission on "How we propose to implement the Default Price-Quality Paths for Gas Pipeline Services"*, 18 February 2013; Vector, *Implementation of the Default Price-Quality Path for Gas Pipeline Services*, 18 February 2013.

[108] Refer: s 52A(1)(b) of the Act.

Unaccounted for gas has also been removed from the base year

C14 We have removed $768,000 from Vector Transmission's base year operating expenditure to remove the effect of unaccounted for gas because they meet the definition of a pass-through cost. Removing this amount from the base year ensures we do not count it twice.

C15 Vector Transmission originally included unaccounted for gas in its base year operating expenditure because it was unsure if it could pass this cost through to consumers. Subsequently, we have confirmed with Vector Transmission that unaccounted for gas can be accounted for in the same way as balancing gas, which is included in the input methodologies as a pass-through cost.

Impact of network scale

C16 Changes in the scale of each supplier's network can affect its operating expenditure. We measured this impact by looking at:

C16.1 trends in network length for each supplier; and

C16.2 trends in the number of constomers.[109]

C17 These factors were applied differently for transmission and distribution services.

Network scale affects operating expenditure for gas distributors

C18 For distribution services, we used the data from Castalia's analysis in its submission on behalf of Vector.[110] Castalia estimated a 10% increase in scale is associated with a 9.8% increase in total operating expenditure, ie, the scale elasticity of operating expenditure is 0.98. Scale is measured as the average of network length and the number of customers, so an elasticity of 0.98 equates to an elasticity of 0.49 for each of network length and the number of customers.

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109 We have collected data on each of these measures from the Gas Information Disclosure Requirements, over the five information years ending in 2007 to 2011.

110 Castalia, *Review of the Draft Decision on the Revised Initial Default Price-Quality Paths for Gas Pipeline Services: Report for Vector Limited*, December 2012, p8.

C19 Castalia's analysis replicates a study by Ofgem (which we used in our revised draft decision). We agree with Castalia's view that its analysis is more relevant and up to date as it uses data for New Zealand and Australian businesses. Submissions from Powerco and Vector supported Castalia's analysis.[111]

Network scale has little impact on operating expenditure of gas transmission businesses

C20 We have set the elasticities for network scale for transmission services to zero. For transmission services, changes in network length and the number of customers are unlikely to have a significant impact on operating expenditure over the regulatory period.[112] Both transmission businesses agreed that setting the network scale elasticities for transmission services to zero is appropriate.[113]

Forecast changes in operating efficiency

C21 Our forecast includes an adjustment for change in operating efficiency of the gas pipeline industry compared to all other industries. Changes in operating efficiency will affect the amount of operating expenditure needed to provide a given level of service.

C22 We have assumed a 0% change in operating efficiency for the first default price-quality path. This assumption is informed by analysis provided by Economic Insights on historical operating expenditure operating efficiency changes for New Zealand and overseas suppliers of gas pipeline services.[114] We received submissions from MDL and Powerco supporting a factor of 0% for operating efficiency.[115]

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111 Powerco, *Draft Decision on Initial DPPs for Gas Pipeline Businesses*, 7 December 2012, p5; Vector, *Submission to the Commerce Commission on Revised Draft Decision on the Initial Default Price-Quality Path for Gas Pipeline Services*, 6 December 2012, p13.

112 MDL submitted that there is a weak relationship between scale and operating expenditure for transmission services. MDL, *Submission on Revised Draft Decision on the Initial Default Price-Quality Paths for Gas Pipeline Services*, 7 December, p5.

113 MDL, *Submission on Revised Draft Decision on the Initial Default Price-Quality Paths for Gas Pipeline Services*, 7 December, p5; Vector, *Submission to the Commerce Commission on Revised Draft Decision on the Initial Default Price-Quality Path for Gas Pipeline Services*, 6 December 2012, p12.

114 Economic Insights, *Regulation for Suppliers of Gas Pipeline Services – Gas Sector Productivity*, Report prepared for the Commerce Commission, 10 February 2011.

115 MDL, *Submission on Revised Draft Decision on the Initial Default Price-Quality Paths for Gas Pipeline Services*, 7 December, p6; Powerco, *Draft Decision on Initial DPPs for Gas Pipeline Businesses*, 7 December 2012, p2.

C23 We consider that it is important to retain an operating efficiency measure in our forecasts. Changes in operating efficiency impact on operating expenditure over time and making the assumption explicit ensures the theoretical consistency of our approach. Making the assumption explicit may also create incentives. The benefit of making the assumption explicit outweighs the concerns raised by Powerco on the cost and difficulty of developing this measure.[116]

Forecast changes in input prices

C24 Our forecast includes a measure of the forecast changes in input prices. Changes in input prices will affect the annual cost of providing a given level of service.

C25 Operating expenditure is adjusted for forecast changes in the cost of inputs using the weighted average forecasts of the changes in the all industries labour cost index and the all industries producer price index. The New Zealand Institute of Economic Research provided forecasts of these indices.[117]

C26 We have weighted the forecast of the labour cost index by 60% and the forecast of the producer price index by 40%. In the absence of labour expenditure data from New Zealand suppliers, these weights are based on analysis of labour costs by Australian gas distribution businesses.[118]

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116 Powerco, *Draft Decision on Initial DPPs for Gas Pipeline Businesses*, 7 December 2012, pp5-6.

117 Under commercial terms between the Commission and the New Zealand Institute of Economic Research, forecasts of the producer price index and the labour cost index may be shared with the industry, but not more widely. Suppliers may request this information from the Commission.

118 Meyrick and Associates, *The Total Factor Productivity Performance of Victoria's Gas Distribution Industry, Report prepared for Envestra, Multinet and SP AusNet*, Denis Lawrence, 2007.

C27 Using forecasts developed for all industries is appropriate as they are likely to provide a good proxy for sector-specific indices, which are hard to predict individually.[119] Therefore, we do not agree with submissions that have suggested using more sector-specific price indices.[120]

Adjustments for factors not already captured

C28 We have made adjustments to our allowances for operating expenditure to include known factors that have not been captured in our modelling. The additional factors we have included are:

C28.1 increases in insurance costs from natural disasters;

C28.2 compressor fuel costs for MDL; and

C28.3 certain compliance costs for GasNet.

C29 These costs are explained below.

Increases in insurance costs from natural disasters

C30 Our allowance includes an adjustment for increased insurance costs resulting from recent natural disasters. This adjustment is appropriate as the increase in insurance costs is:

C30.1 likely to affect each supplier's operating expenditure;

C30.2 likely to affect all suppliers; and

C30.3 a factor over which suppliers have limited control.

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[119] Based on the limited information available, the all industries labour cost index has a correlation of over 97% with the Electricity, Gas, Water and Waste Services labour costs index. The all industries producer price index has a correlation of 71% with the Electricity, Gas and Water producer price index and a correlation of 64% with the Electricity and Gas Supply producer price index. Analysis of New Zealand Statistics ANZSIC06 labour cost index data and NZSIOC producer price index (input) data (source: www.stats.govt.nz/infoshare).

[120] Powerco, *Powerco submission on additional input methodologies for default price-quality paths: process and issues paper,* 27 January 2012 p. 35, MDL, *Submission on Revised Draft Decision on the Initial Default Price-Quality Paths for Gas Pipeline Services*, 7 December, p6.

C31 This allowance reflects each supplier's forecast increase in insurance expenditure in current prices due to natural disasters.[121] Suppliers had their forecasts independently verified and the associated analysis and documentation certified by a Director.[122] We then reviewed the supporting information suppliers provided to us and, where necessary, asked for further clarification.[123]

Compressor fuel costs have been included for MDL

C32 MDL's operating expenditure includes an allowance for the cost of compressor fuel.[124] MDL needs to purchase compressor fuel to operate its pipeline. It advised us that due to the way compressor fuel was previously provided these costs were zero in 2011, the year we have chosen for the base year. This allowance was supported by MGUG, who is independent from MDL.[125]

C33 MDL cannot pass compressor fuel costs on to consumers. MDL requested that we amend the input methodologies to allow compressor fuel as a pass-through cost.[126] This does not merit an amendment because the compressor fuel issue for MDL will only occur for this first default price-quality path. In the future the costs will form part of its base year.

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121 We requested this information under s 53ZD of the Act on 17 December 2012. A copy of this information request is available at http://www.comcom.govt.nz/initial-default-price-quality-path/.

122 Some suppliers have requested that their insurance forecasts be treated in confidence. We have ensured confidentiality by presenting their forecasts of operating expenditure as an aggregate value in the financial model.

123 Since the revised draft decision we requested updated data from MDL on its insurance costs from 2013 onwards and included this amount in the allowance of operating expenditure.

124 For 2012 the allowance for compressor fuel costs are based on the actual costs MDL faced in that year. For all other years we have accepted MDL's estimates of the costs of compressor fuel.

125 MGUG, *Submission on Revised Draft Decision on the Initial Default Price-Quality Paths for Gas Pipeline Services*, 7 December 2012, p4.

126 MDL, *Submission on Revised Draft Decision on the Initial Default Price-Quality Paths for Gas Pipeline Services*, 7 December, p7.

Costs of complying with regulation have particular impact for GasNet

C34 GasNet's allowance for operating expenditure includes an allowance for increases in the costs of compliance from the introduction of Part 4 and certification with the Safety Management System regime. GasNet requested such an allowance because it was previously not subject to regulation and these additional costs are a significant part of its operating expenditure (approximately 10% in the base year).[127]

C35 We do not agree with submissions from Vector and MDL also requesting an allowance for the cost of complying with the regime.[128] Both of these businesses are significantly larger than GasNet, so any additional costs are a small proportion of their operating costs. Vector has also previously been subject to a Gas Authorisation which means compliance costs will be included in its base year.

Other options inappropriate

C36 We have not accepted submissions requesting that we amend our forecasts to cater for unpredictable operating expenditure, and the ageing of the network. Neither of these approaches fit with the scope of a default price-quality path.

C37 Because a default price-quality path must be set in a low cost way, it is not appropriate to assess costs at the level of detail necessary to include unpredictable operating expenditure as a recoverable cost. We therefore do not agree with MDL's submission on this matter.[129]

C38 Forecasting the impact of the age of an asset on operating expenditure sits outside of the low cost purpose of a default price-quality path. This is because estimating the impact of the age of assets would require detailed information, modelling and assessments. We have therefore not accepted Vector's submission that its operating expenditure allowance should increase to cover costs of its ageing assets.[130]

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127 GasNet, *Submission on Revised Draft Decision on the Initial Default Price-Quality Paths for Gas Pipeline Services*, 7 December 2012, pp8-9.

128 MDL, *Cross-Submission on Revised Draft Decision on the Initial Default Price-Quality Paths for Gas Pipeline Services*, 21 December, p1; Vector, *Submission to the Commerce Commission on Revised Draft Decision on the Initial Default Price-Quality Path for Gas Pipeline Services*, 6 December 2012, p12. We followed up on these requests with suppliers.

129 MDL, *Submission on Revised Draft Decision on the Initial Default Price-Quality Paths for Gas Pipeline Services*, 7 December, p7.

130 Vector, *Submission to the Commerce Commission on Revised Draft Decision on the Initial Default Price-Quality Path for Gas Pipeline Services*, 6 December 2012, p4.

Summary of information sources

C39 Table C1 provides a summary of the information sources we have relied on for each aspect of our forecasts of operating expenditure.

Table C1: Information for operating expenditure forecasts

Item	Information used	Source
Base year operating expenditure	Suppliers' actual operating expenditure for the year ending 2011 or 2012	Section 53ZD information request
Changes in scale	Historical trends in network length for each supplier Historical trend in consumer numbers for each supplier	Information disclosed under the Gas Industry Disclosure Requirements and Commission analysis
Impact of changes in scale on operating expenditure	Estimates of network scale elasticities for each type of service.	Castalia analysis; and Commission analysis
Changes in operating efficiency	Historical trends of operating expenditure and associated inputs and outputs across the industry	Commission analysis, Economic Insights
Changes in input prices	All industries producer price index and labour cost index	NZIER
Insurance adjustment	Suppliers' forecasts	Section 53ZD information request
MDL's compressor fuel costs	MDL forecasts	Section 53ZD information request
GasNet's additional compliance costs	GasNet forecast	Section 53ZD information request

Attachment D: Forecasts of other line items

Purpose of this attachment

D1 This attachment explains our approach to calculating:

D1.1 the inputs necessary to calculate each supplier's required return on capital;

D1.2 other regulated income;

D1.3 disposed assets; and

D1.4 tax costs.

D2 These forecasts are applied in Step One of our approach to setting starting price or revenue, which is discussed in Chapter 2.

Required return on capital

D3 The building block approach we have applied provides suppliers with a return on capital.[131] Suppliers receive this return through:

D3.1 prices, which generate cash-flow during the regulatory period; and

D3.2 revaluations, which are effectively capital gains on the value of their network.[132]

D4 Below we set out the key parameters used in the calculation of the return on capital, and how we determine the amount that is directed towards revaluations.

Cost of capital calculated using input methodologies

D5 To calculate the return on capital we multiply each supplier's asset value by the WACC. The WACC is the weighted average of the pre-corporate tax cost of debt and the cost of equity. It represents the financial return investors require from an investment given its risk. The WACC is taken from the applicable WACC determination.[133]

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131 The other main component of each supplier's starting price is the return of capital, which is the amount of depreciation on their assets plus any disposed assets.

132 We also calculated the term credit spread differential in accordance with the input methodologies.

133 Refer: *Cost of capital determination for default price-quality paths for suppliers of gas distribution and gas transmission services, and customised price-quality path proposals made by Vector Limited and GasNet Limited [2012] NZCC 38*, 20 December 2012.

Calculating the allowance for the term credit spread differential

D6 To calculate the allowance for the term credit spread differential, we applied the input methodologies for the weighted average cost of capital. These input methodologies require us to calculate the allowance on the same basis that suppliers would use when they disclose information about the term credit spread differential under information disclosure regulation.

D7 As required by the input methodologies, we relied on information about wholesale bid rates in our calculations. Vector raised a concern with using wholesale rates because, in Vector's view, these rates would not be available to suppliers when they go to deal in the market. We have followed the approach set out in the input methodologies, and we relied on information that is available from Bloomberg about wholesale bid-offer spreads in our calculations.

Input methodologies also applied to determine the revaluation rate

D8 We determined the amount of the return on capital that goes towards revaluations by applying a revaluation rate to each supplier's total investment. The revaluation rate is the change in the CPI index from the previous June quarter to the current June quarter (except for MDL, which uses a 1 January to 31 December year to match with its pricing year).

D9 Changes in the CPI are calculated by applying the input methodologies. We use a composite of the Statistics New Zealand SE9A all industries index, and the forecasts in the September 2012 Monetary Policy Statement from the Reserve Bank of New Zealand. For the years beyond which forecasts are available we have assumed that CPI trends towards the Reserve Bank's target of 2%.

Other regulated income

D10 To determine each supplier's starting price or revenue, we are required to make an assumption about the other income they will receive through the provision of regulated services. For example, 'other regulated income' includes lease or rental income from regulated assets.

D11 The forecast of other regulated income is deducted in the calculation of building blocks allowable revenue. While building blocks allowable revenue generally relates to income received from gas distribution and transmission line charges, other income they receive is also relevant to determining each supplier's revenue requirement.

D12 Other regulated income is forecast by taking the arithmetic average of each business's other income from 2008 to 2011 and adjusting this for the effects of inflation each year.[134] We excluded the one-off payment Vector Transmission received in 2011 from suppliers and consumers, as we consider that is unlikely to reoccur.[135]

Disposed assets

D13 To maintain consistency between the value of disposed assets and treatment of costs on disposals we have set both values to zero. We received no submissions on this approach.

D14 Any loss on disposal not included in the forecast of operating expenditure will be offset by the return suppliers receive on their assets. Our approach also aligns with the low cost nature of a default price-quality path.

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134 We asked for other regulated income for the years ending 2008 to 2011 in Commerce Commission, *Notice to Supply Information to the Commerce Commission under section 53ZD of the Commerce Act 1986*, 22 June 2012.

135 Vector supported our decision to set its other regulatory income to zero. Vector, *Submission to the Commerce Commission on Revised Draft Decision on the Initial Default Price-Quality Path for Gas Pipeline Services*, 6 December 2012, p10.

Attachment E: Forecasts of revenue growth in constant prices

Purpose of this attachment

E1 This attachment explains how we have forecast constant price revenue for each supplier. These forecasts are used in Step Two of our approach to setting starting prices discussed in Chapter 3.

Overview of the approach to modelling constant price revenue

E2 To set the price path for gas distributors, we require constant price revenue forecasts for the regulatory period, ie, 1 July 2013 to 30 September 2017.

E3 For distributors, these forecasts are used along with forecasts of the CPI to estimate the amount by which each supplier's revenue will change under this first default price-quality path. Some years of the forecasts are also used in the ΔD calculation in the compliance formula (discussed further in the accompanying paper *Compliance requirements for the default price-quality paths for gas pipeline services*).

E4 For gas transmission businesses the revenue forecasts are used only in the ΔD calculation because these businesses are subject to a revenue cap. The revenue forecasts are also used to illustrate starting price adjustments in percentage terms.

Our approach is different for gas distribution and gas transmission

E5 Our approach for gas distribution involves modelling constant price revenue separately for residential, industrial, and commercial users. We have relied on information on load groups provided by suppliers under an information gathering request to classify revenue into those three categories, and have modelled the impact of changes in forecast quantities a supplier charges for. The three distributors use gas quantities delivered and per connection charges as parts of their tariffs.

E6 Our approach for gas transmission involves modelling revenue (in constant prices) separately by the billing quantities the businesses use. Both businesses use throughput fees that reflect the quantity of gas transported. MDL uses as a second billing basis the quantity of gas transported multiplied by the distance transported. Vector Transmission bills for the amount of reserved capacity.

E7 Revenue from gas quantities is modelled using gas demand forecasts from a study by Concept Consulting Limited for the Gas Industry Company.[136] We have modelled the other tariff components by extrapolating historical trends in these components forward, except for Vector Transmission where we used a forecast from Concept Consulting Limited.

Main changes since the revised draft decision

E8 Our decision uses a different gas quantity forecast for gas distributors than the draft decision. In the revised draft decision we relied solely on Concept Consulting Limited's moderate gas scenario. In the final decision we use the arithmetic average of forecasts of:

E8.1 each supplier's four year historic trend in the quantity of gas delivered; and

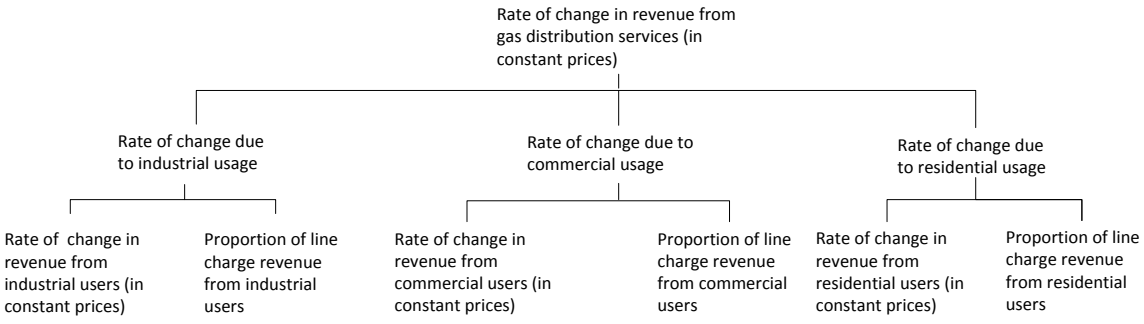
E8.2 the quantity of gas from Concept Consulting Limited's moderate gas supply scenario.

E9 Our approach to modelling constant price revenue for gas transmission is unchanged from the revised draft.

Forecasting constant price revenue for gas distribution businesses

E10 Figure E1 gives an overview of our approach to modelling revenue for gas distribution businesses.

Figure E1: Modelling constant price revenue for gas distributors



E11 The rates of change in revenue from each type of user are further broken down into the two types of billed quantities that distributors use. This breakdown is shown in Figure E2 for residential users, and a similar breakdown applies to industrial and commercial users.

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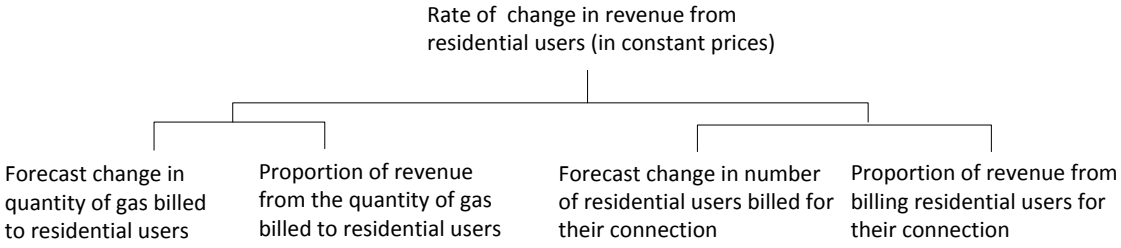
136 Concept Consulting Group Limited, *Gas Supply and Demand Scenarios 2012 - 2027, December 2012*. The paper and the model files are available at http://gasindustry.co.nz/work-programme/gas-transmission-investment-programme

Figure E2: Approach to modelling rate of change in revenue from residential users

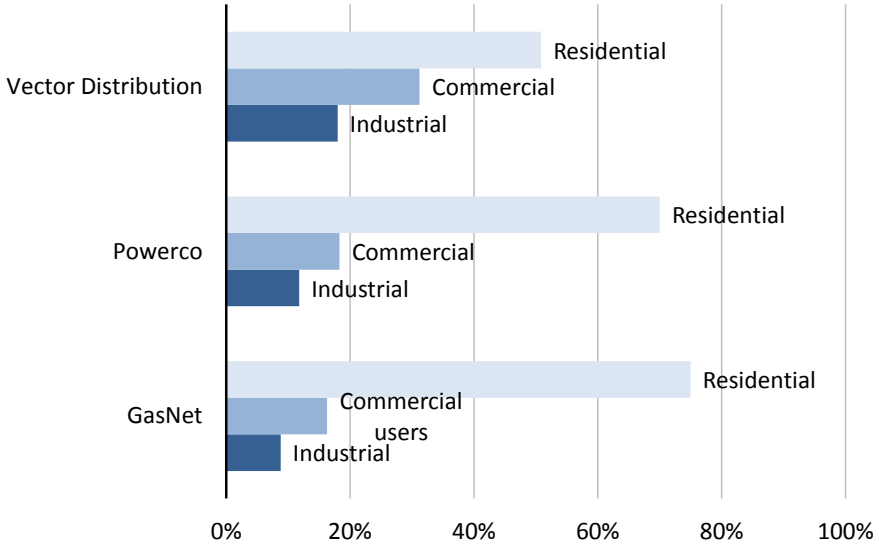


E12 Below we explain the role of each of the elements outlined above, how they fit together and our reasons for adopting our approach. Our calculations are set out in detail in the spreadsheets published alongside this decision.

Industrial, commercial and residential users have each been grouped together

E13 Gas distributors group their customers with similar characteristics into load groups for billing purposes.[137] Figure E3 sets out the contribution to revenue from each user type to total revenue in 2011.[138]

Figure E3: The contribution of each user type to total revenue (2011)



Source: Commission calculations using information provided by distributors.

[137] Some distributors also have a regional differentiation in their charges. The information we used relates to the distributor overall.

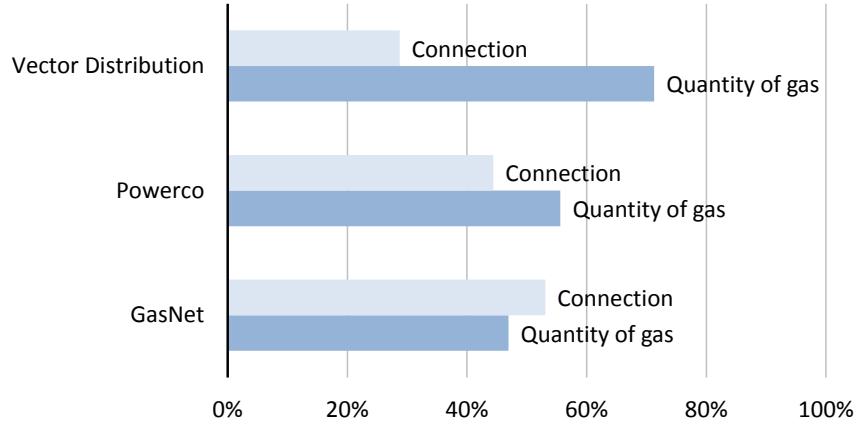
[138] For further information on how these growth factors are calculated, please see Attachment G in our revised draft decision.

Forecasts are made of the quantity of gas delivered and the number of connections

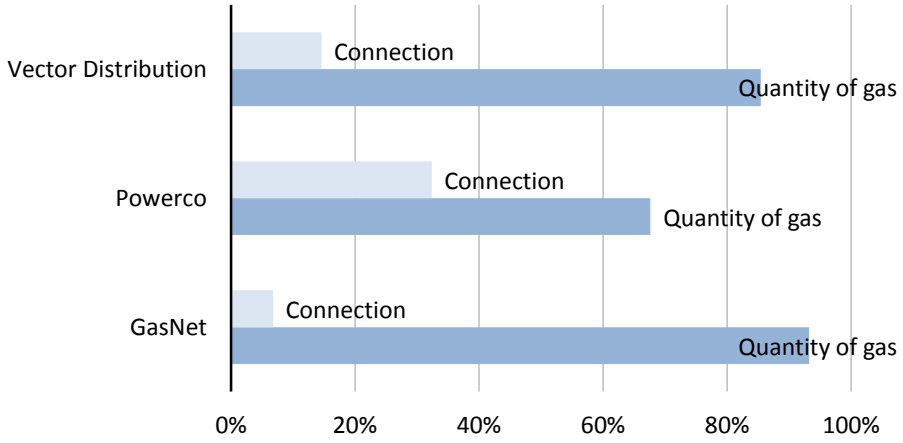
E14 Vector Distribution, Powerco and GasNet base their tariffs on the quantities of gas distributed and per connection charges. Figure E4 illustrates the proportion of revenue suppliers get from each type of charge from industrial, commercial and residential users.

Figure E4: Combination of billing quantities for different user types

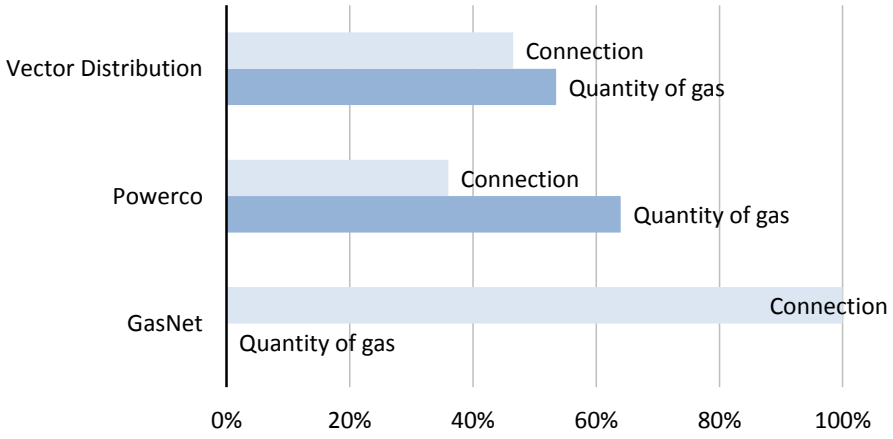
Composition of revenue from residential users



Composition of revenue from commercial users



Composition of revenue from industrial users



Source: Commission calculations using information provided by distributors.

E15 Suppliers choose what type of quantities they bill for. Our approach reflects information from each supplier on its choices. To this extent the forecast is tailored to each supplier. Suppliers can also structure their tariffs according to their own policy and can restructure their tariffs as long as they stay under the weighted average price cap. Our approach assumes that the structure of tariffs stays constant over the first default price-quality path regulatory period.

How the change in the quantity of gas delivered is forecasted

E16 We consider that our forecast of the change in the quantity of gas billed appropriately reflects the expected change in the quantity of gas billed over the regulatory period. Our forecast of gas demanded for each user type is the average of:

E16.1 each distributor's historical trend; and

E16.2 the relevant moderate gas supply scenario from the demand forecasts by Concept Consulting Limited.[139]

E17 In the revised draft decision we relied on Concept Consulting Limited's moderate gas supply scenario, but sought submissions to help us develop a forecast.

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139 Concept Consulting Limited, *Gas Supply and Demand Scenarios 2012 – 2027,* December 2012. This study was commissioned by the Gas Industry Company. It focuses mainly on the Vector Transmission system but also provides forecasts for gas distribution and the Maui pipeline.

E18 Submissions suggested two main alternatives to Concept Consulting Limited's moderate scenario.[140] Submissions argued that we should use:

E18.1 historic trends in each supplier's historic quantities; [141] or

E18.2 Concept Consulting Limited's tight scenario, as it most closely replicates historic trends.[142]

E19 Both Concept Consulting Limited's scenarios and supplier's historic trends provided information that is relevant for forecasting the quantity of gas over the regulatory period.

E20 We have therefore taken the average of Concept Consulting Limited's moderate scenario, and the four year historic trend of each supplier's gas quantities for the first default price-quality path. As we explain below, this means that the forecast includes both supplier-specific (but backward looking) and forward looking (but covering the whole North Island) information, and appropriately reflects the evidence that is available.

E21 Concept Consulting Limited's gas demand scenarios are forward looking and are based on modelling the economics of demand and supply for gas. Concept Consulting Limited notes that, on balance

> There would be likely to be some continued growth in demand for gas water heating, but relatively flat demand (possibly declining in some scenarios) for gas for space heating.[143]

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140 Castalia, on behalf of Vector, also proposed that we use the MBIEs' Energy Outlook report as a source of forecast of gas demand**.** We have not accepted this submission because, as noted by Vector, we should use the latest available evidence, and not rely on draft reports. Energy Outlook was published in January 2012, whereas the Concept Consulting Limited report was published in December 2012. There is also on-going consultation on the modelling in the Energy Outlook report (refer to see*www.med.govt.nz/sectors-industries/energy/pdf-docs-library/energy-data-and-modelling/modelling/EDGS)*

141 Powerco, *Draft Decision on Initial DPPs for Gas Pipeline Businesses*, 7 December 2012, p9; Vector, *Submission to the Commerce Commission on Revised Draft Decision on the Initial Default Price-Quality Path for Gas Pipeline Services*, 6 December 2012, p14.

142 Powerco, *Draft Decision on Initial DPPs for Gas Pipeline Businesses*, 7 December 2012, p9.

143 Concept Consulting Limited, *Gas Supply and Demand Scenarios 2012 – 2027,* December 2012, p78.

E22 The price of gas influences gas demand and Concept Consulting Limited notes that

> In recent years New Zealand has moved into a position of greater gas availability, and this is being reflected in softer wholesale gas prices relative to earlier levels (albeit above the 'low gas price' scenario). Current indications are that these conditions are likely to continue for some years. […] any sudden major step-up in wholesale gas prices inside a five year period appears relatively unlikely, as the required preconditions would take some years to develop and would be unlikely to occur without warning.[144]

E23 We consider that among Concept Consulting Limited's three scenarios, the moderate gas supply scenario appropriate reflects the most likely future gas demand.[145]

E24 Historic trends have the advantage over a national forecast that they are supplier-specific. In contrast, while Concept Consulting Limited's scenarios are forward looking, the modelling relevant for gas distribution is for the North Island overall.

E25 There are some differences between trend growth and Concept Consulting Limited's scenario, shown for each user type in Figure E5 to Figure E7 below.

E25.1 For Powerco and Vector, historic trend growth in gas distributed by industrial and residential users from 2008 to 2011 was somewhat lower than growth in Concept Consulting Limited's moderate scenario. However, trend growth for commercial users was above the moderate scenario.

E25.2 For GasNet, historic trend growth in gas distributed was lower than the moderate scenario for residential and commercial users.[146]

E26 The figure overleaf shows for each distributor the forecast gas quantities for residential users we used in our decision. The figure also shows the two components of the forecast, each distributors' historic trend growth and Concept Consulting Limited's moderate scenario.

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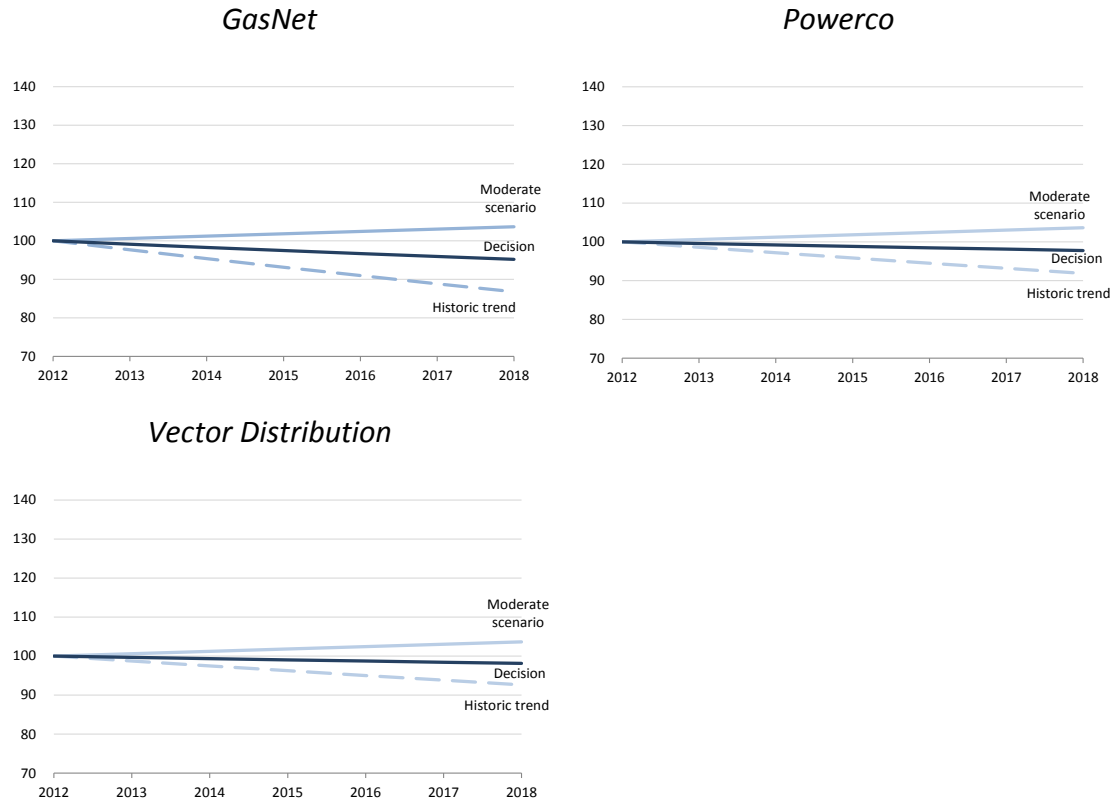
144 Concept Consulting Limited, *Gas Supply and Demand Scenarios 2012 – 2027,* December 2012, p5.

145 In the moderate gas supply scenario, gas demand for space heating declines by 0.5% per year, demand for water heating increases by 2% per year, and demand for process heat increases by 1.5% per year.

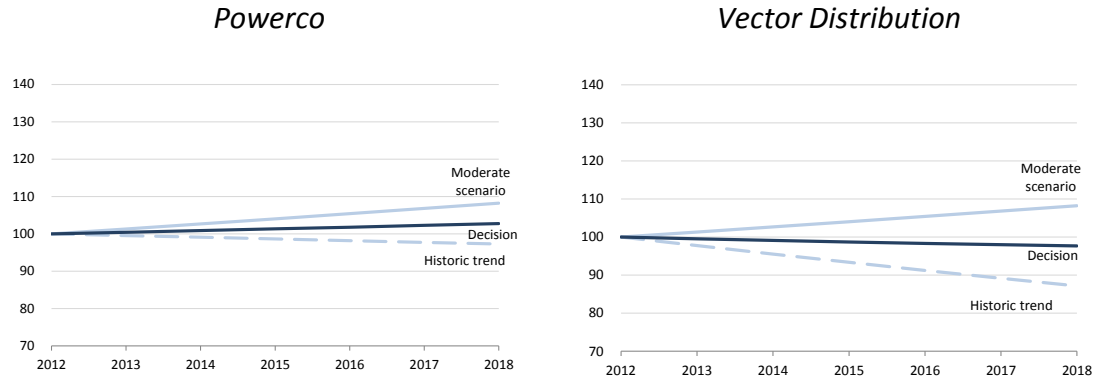
146 GasNet's historic trend growth for industrial users was higher than the moderate scenario, but this does not affect our modelling because GasNet does not charge industrial users on the basis of the amount of gas delivered.

Figure E5: Forecast of gas distributors' gas quantities for residential users



E27 The figure overleaf shows for each distributor the forecast gas quantities for industrial users we used in our decision. The figure also shows the two components of the forecast, each distributor's historic trend growth and Concept Consulting Limited's moderate scenario.

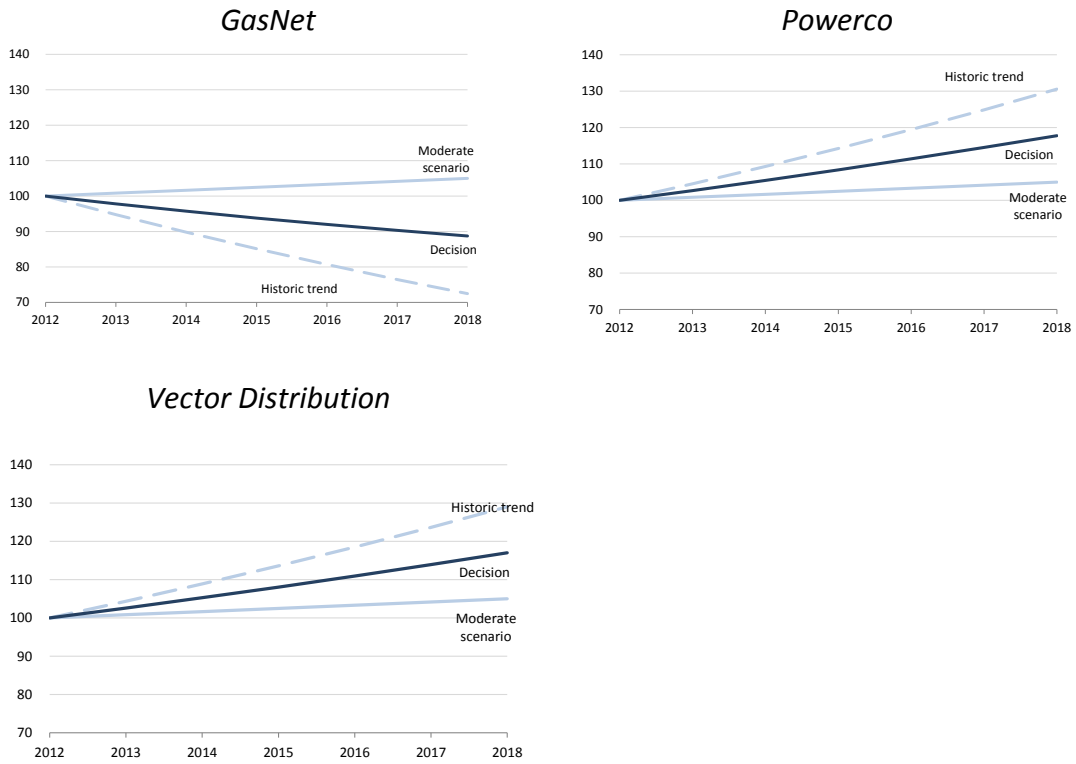
Figure E6: Forecast of gas distributors' gas quantities for industrial users



Note: GasNet's forecast is not shown because it does not charge industrial users on the basis of the amount of gas delivered.

E28 The figure below shows for each distributor the forecast gas quantities for commercial users we used in our decision. The figure also shows the two components of the forecast, each distributor's historic trend growth and Concept Consulting Limited's moderate scenario.

Figure E7: Forecast of gas distributors' gas quantities for commercial users



E29 In our view information on historic gas quantities from the Energy Data File cannot be used in support of submissions that suggest we should base our forecast either on each suppliers' historic trend from 2008 to 2011 or Concept Consulting Limited's tight scenario.[147] Powerco and Castalia on behalf of Vector submitted a graph showing historic gas consumption for commercial and residential users at the national level:[148]

E29.1 residential users increased their gas consumption by 0.7% per year from 2008 to 2011, which contrasts with a decline in gas quantities for each of the three distributors over the same period;

147 Powerco, *Draft Decision on Initial DPPs for Gas Pipeline Businesses*, 7 December 2012, p11; Castalia, *Review of the Draft Decision on the Revised Initial Default Price-Quality Paths for Gas Pipeline Services*, December 2012, p 20

148 The figure shows a trend decline of around 1.9% for commercial users, and 2.45% for residential users from 2002 to 2011. Source: Commerce Commission calculations based on data from MBIE's Energy data file 2012, Table E.5b

E29.2 commercial users reduced gas their consumption by 5.4% per year from 2008 to 2011, which contrasts with an increase in gas quantities of more than 4% per year over the same period on Vector's and Powerco's network.[149] [150]

Assumptions we have made in forecasting the change in gas delivered

E30 In applying Concept Consulting Limited's moderate scenario we made the following assumptions:

E30.1 for industrial usage, we took the study forecasts for users that are billed on the basis of their time of use;

E30.2 for residential usage, we took the study forecasts for users that are not billed on the basis of their time of use; and

E30.3 for commercial usage, the study does not provide separate values. We have assumed that forecast growth in commercial usage is the weighted average of time of use (30%) and non-time of use (70%) forecast growth.[151]

E31 We use the same demand forecasts for each distributor because Concept Consulting Limited uses a single rate of change for all regions.

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[149] We note that the observed patterns may at least be partly due to the Energy Data File gas consumption series including all gas consumption, not just that delivered by gas pipeline.

[150] Powerco also submitted sales figures by Rinnai New Zealand to illustrate a historic decline in gas demand. We were unable to draw conclusions based on this information since it is not clear how representative Rinnai's figures might be of the New Zealand North Island market for distributed gas. The charts also do not show the units of measurement or the scale. Powerco, *Draft Decision on Initial DPPs for Gas Pipeline Businesses*, 7 December 2012, p11.

[151] We consider it reasonable to assume that 30% of gas quantities delivered to commercial users are to time-of use customers. CEG on behalf of Vector submitted that all commercial customers are non-time of use customers, and between 8 to 19% of industrial users are non-time of use customers (CEG, *Default Price-Quality Path Reset for Gas Pipelines*, November 2012, p4). Assessing the composition of commercial customers according to load groups provides useful insights on the likely share of time of use customers in this category. Concept Consulting Limited explains that time of use customers are industrial customers with demands typically greater than 10TJ per annum (Concept Consulting Limited, *Gas Supply and Demand Scenarios 2012 – 2027,* December 2012*,* p60*)*. Of the gas Vector distributed to commercial customers, almost 60% was to users with a consumption of more than 40scm per hour but less than 200scm per hour, ie, a theoretical maximum possible use of 14 to 70TJ per year. Of the gas Powerco distributed to commercial customers, almost 50% was to users with a consumption of more than 60scm per hour but less than 200 scm per hour, ie, a theoretical maximum possible use of 21 to 70TJ per year. Of GasNet's commercial customers it appears that most or all have a consumption of less than 10TJ per year.

E32 To obtain an overall gas quantity forecast for each supplier we weighted the forecasts for each user group by their contribution to revenue in 2011, as laid out in Figure E4 above.[152]

E33 The table overleaf shows the growth in gas quantities we have assumed for industrial, commercial and residential users.[153]

Table E1: Forecast change in gas quantities

(% change per year from 2013 to 2018)

User type	Concept Consulting Limited's moderate scenario	Historic trend	Decision forecast
GasNet			
Industrial	1.3%	11.7%	6.5%
Commercial	0.8%	-5.2%	-2.2%
Residential	0.6%	-2.3%	-0.9%
Powerco			
Industrial	1.3%	-0.5%	0.4%
Commercial	0.8%	4.5%	2.7%
Residential	0.6%	-1.4%	-0.4%
Vector			
Industrial	1.3%	-2.3%	-0.5%
Commercial	0.8%	4.3%	2.6%
Residential	0.6%	-1.3%	-0.3%

Source: Commission calculations using information from Concept Consulting Limited and information provided by distributors.

152 The contribution of each user type to overall revenue in future years changes to the extent that different user types are forecast to grow at a different rates.

153 For further information on how these growth factors are calculated, please see Attachment G in our revised draft decision. Commerce Commission, *Revised Draft Decision on the Initial Default Price-Quality Paths for Gas Pipeline Services*, 24 October 2012.

How the change in the number of connections is forecasted

E34 To forecast the change in revenue from per connection charges we have extrapolated historical trends in the number of connections. This approach was supported by Powerco in its submission.[154] For each distributor and for each type of user, we calculated the trend growth in the number of connections between 2008 and 2011.[155] We then assumed that this growth applies over the regulatory period.

E35 For the purpose of the first default price-quality path the use of trend information is appropriate. For the next reset we will consider alternative data sources once evidence from information disclosures (including the disclosure of asset management plans) becomes available.

E36 The table below shows the trend growth in the number of connections for the different types of users for each distributor.

Table E2: Forecast change in number of connections

(% change per year from 2013 to 2018)

User type	GasNet	Powerco	Vector Distribution
Industrial	-0.1	-6.5	-3.9
Commercial	0.2	1.3	1.7
Residential	0.3	0.2	1.9

Source: Commission calculations.

Information used for modelling gas distribution

E37 The table below summarises, for each component, the information we used to model the change in constant price revenue for distributors. For further discussion on the information we use refer to Attachment G in our revised draft decision and the spreadsheet model we have published alongside this paper.

[154] Powerco, *Draft Decision on Initial DPPs for Gas Pipeline Businesses*, 7 December 2012, p2.

[155] The information and calculations are set out in the spreadsheet published alongside this paper.

Table E3: Information for modelling revenue for gas distributors

Item	Information used	Source
Forecast change in quantity of gas billed to residential/ commercial/ industrial users	Industry-wide forecasts and supplier-specific historical trends	Concept Consulting Limited's scenario-based study of gas demand and supply, information from s 53ZD requests, and Commission calculations
Forecast change in number of residential/commercial/ industrial users billed for their connection	Supplier-specific historical trends	Commission calculations based on information from s 53ZD requests
Proportion of revenue from residential/commercial/industrial users	Supplier-specific information on different categories of line charge revenue	Commission calculations based on information from s 53ZD requests
Proportion of revenue from the quantity of gas billed to residential/commercial/industrial users	Supplier-specific information on different categories of line charge revenue	Commission calculations based on information from s 53ZD requests
Proportion of revenue from billing residential/commercial/industrial users for their connection	Supplier-specific information on different categories of line charge revenue	Commission calculations based on information from s 53ZD requests

Forecasting constant price revenue for gas transmission businesses

E38 Under a revenue cap the change in constant price revenue does not affect the supplier's starting price. However, revenue forecasts are used to calculate the ΔD term used in determining initial allowable notional revenue (discussed further in the accompanying paper *Compliance requirements for the default price-quality paths for gas pipeline services*), and to illustrate the size of any starting price adjustment in percentage terms.

Quantities for transmission businesses are forecast for all users together

E39 The approach to modelling we used ensures, where possible, consistency between the transmission pipelines, and between transmission and distribution.

E40 Gas transmission services provided by MDL and Vector Transmission meet the demand from large users, which are often directly connected to the gas transmission network, such as electricity generation and large industrial users. The Vector and Maui pipelines also transport gas which is further distributed via gas distribution networks.

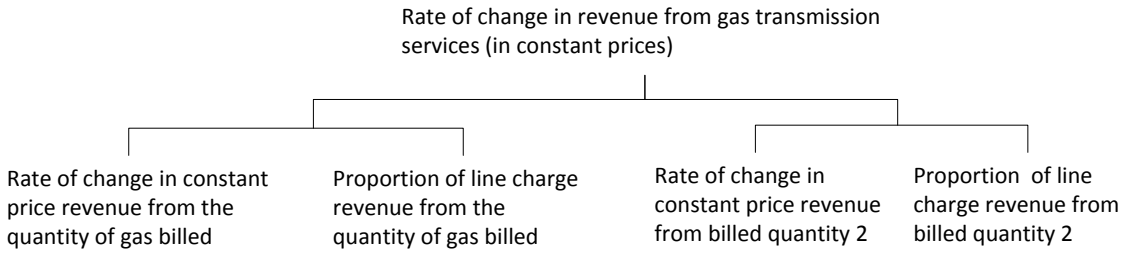
E41 Most of the gas transported in the Vector pipeline, is first transported by the Maui pipeline. For example, of the 90PJ transported by Vector in 2011, 81PJ went first through the Maui pipeline.[156] The Vector pipeline also has some gas directly put into it, eg, from the Kapuni gasfield.

E42 The Vector Transmission pipeline provides gas to large users directly connected to the network, and provides gas to the GasNet, Powerco and Vector Distribution networks.

E43 In addition to transporting gas to the Vector pipeline, the Maui pipeline has several large customers directly connected to it. In total, MDL transported 133.5PJ of gas in 2011.

E44 The figure below gives an overview of our approach to modelling constant price revenue. This involves separate modelling of each of the two billed quantities used by transmission businesses.

Figure E8: Modelling constant price revenue for gas transmission businesses



E45 Transmission businesses charge shippers for transmission services they provide. Vector Transmission and MDL have told us that they cannot trace back the amount of gas they bill for to the type of user, because their commercial relationship is with shippers. Unlike for gas distributors, we therefore have modelled gas quantities in aggregate and not broken down by user type.

Separate forecasts made for the different charges by each transmission business

E46 MDL recovers its revenue by billing shippers for the quantity of gas transported, and the amount of gas multiplied by the distance transported.

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156 PJ means petajoule, a measure of energy.

E47 Vector Transmission charges shippers for the quantity of gas transported and the amount of reserved capacity. [157]

E48 Our forecasts assume that the type of billed quantities used by each transmission business do not change over the forecast period. We also assume that the proportions of revenue from different billed quantities, which are used to combine the growth from different billed quantities into a single forecast of revenue in constant prices, are the same as in the base year.

E49 The table below sets out the contribution to revenue from each user type to total revenue in 2011.

Table E4: Contribution of user types to total revenues in 2011

User Type	MDL	Vector Transmission
Quantity of gas billed	13%	44%
Quantity of gas multiplied by distance	87%	0%
Quantity of reserved capacity	0%	56%

Source: Commission calculations using information provided by suppliers.

How the change in the quantity of gas delivered is forecasted

E50 Concept Consulting Limited's study provides gas demand forecasts broken down into different user types. We have used this information to develop an overall gas quantity forecast for Vector Transmission and MDL respectively, and assumed that the change in gas demand is equal to the change in the quantity of gas billed.[158]

E51 The Concept Consulting Limited report breaks gas demand into the following categories:

E51.1 time of use, ie, demand from industrial users;

E51.2 non-time of use, ie, demand from residential users;

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[157] Vector Transmission also has an overrun fee that is payable if a customer exceeds the reserved capacity. We have not separately modelled the amount of gas that exceeds the reserved capacity. Our modelling therefore assumes that revenue in constant prices is not driven by the quantity of gas exceeding reserved capacity. We consider this is a reasonable simplifying assumption as it is difficult to forecast this quantity.

[158] In practice there is a difference between the amount of gas transported in the pipeline and the amount of gas billed for. Vector Transmission may transport the same quantity of gas more than once within its system. The quantity of gas billed therefore exceeds the quantity of gas transported. MDL bills on the basis of 'Scheduled Quantities from Approved Nominations'. Metered quantities of gas are counted twice, when the gas enters and when it leaves the Maui pipeline. The sum of metered quantities is therefore approximately twice the sum of billed quantities.

E51.3 dairy;

E51.4 paper;

E51.5 meat;

E51.6 refining;

E51.7 steel;

E51.8 petrochemical demand for Vector Transmission;[159] and

E51.9 power generation for Vector Transmission.

E52 The study also provides a demand forecast for the North Island overall, which provides a forecast for overall petrochemical and power generation demand.[160] We used these forecasts to model the change in revenue from MDL's direct connects, ie, petrochemical producers and power generators. The rest of MDL's gas quantity is assumed to grow at the same rate as that of Vector Transmission.

E53 The forecast growth of gas quantity in time of use and non-time of use demand is similar to that for gas distribution.[161]

How MDL's other charges are forecasted — quantity multiplied by distance

E54 As noted above MDL charges its customers both based on quantities of gas transported and the quantity transported multiplied by distance.

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159 In Concept consulting Limited's study, this category is referred to as 'Other'. Concept Consulting Limited explains that the 'other' category covers gates which have been classed by Vector as 'petrochemicals' and 'other' industrial sectors. Approximately 90% of 'other' demand is for the Frankley Rd system, principally relating to petrochemicals demand. Concept Consulting Limited, *Gas Supply and Demand Scenarios 2012 – 2027*, December 2012, footnote 50.

160 Concept Consulting Group Limited, *Gas Supply and Demand Scenarios 2012 – 2027,* December 2012, p. 79 and the worksheet NI_Proj_Line in Concept Consulting Limited's model.

161 However, we did not separately model gas demand from commercial users. For gas distributors we forecast the change in demand from commercial users as the average of time of use-demand and non-time of use demand. We did not attempt to achieve full consistency between the gas quantity forecast used for gas distributors (which in addition to separately modelling commercial users is based on the average of the historic trend in each supplier's forecast and Concept Consulting Limited's moderate scenario) and for gas transmission (which is based on Concept Consulting Limited's moderate scenario). Submitters considered the moderate scenario for gas transmission overall to be reasonable and, gas transmitters are subject to a revenue cap, so our revenue forecast does not affect prices.

E55 To forecast MDL's quantity multiplied by distance transported we estimated historical trend growth between 2008 and 2011 in average distance gas is transported. We found that distance declined by 4.4% per year. We used this trend to develop a forecast consistent with the gas quantity forecast.[162]

How Vector Transmission's other charges are forecasted — reserved capacities

E56 To forecast the change in Vector Transmission's reserved capacity (measured in maximum daily demand) we applied forecast peak week demand from Concept Consulting Limited's study, which in the moderate supply scenario is 3.4% from 2011 to 2012 and around 0.26% thereafter.[163] This assumes that weekly peak demand is a reasonable proxy for reserved maximum capacity. This approach was supported by Vector in submissions.[164]

E57 The effect of weekly maximum demand on capacity requirement may differ from daily maximum demand. Over a period of less than one week the stores of gas contained in the pipeline can meet short term requirements without additional injection of gas. Gas-powered electricity generation plants can have high demand swings within a week, eg, caused by intermittent cold days.

E58 Perhaps more importantly, Concept Consulting Limited forecasts actual demand, whereas Vector bills for reserved capacity, which may or may not be used fully by the shippers who reserve it. This means that reserved capacity may grow faster or slower than actual maximum capacity depending on the capacity bidding incentives and the behaviour of market participants. This view was confirmed by Vector in submissions.[165]

E59 We also considered extrapolating historical trends in reserved capacity. However, reserved capacity grew by almost 8% per year between 2008 and 2011. We hesitate to assume a similar high growth would be achieved over this regulatory period.

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162 We did this by extending forward the average distance in 2011 of 141 km by the trend growth, and multiplying the series by the gas quantity forecast.

163 Concept Consulting Group Limited, *Gas Supply and Demand Scenarios 2012 – 2027,* December 2012, p. 99, and worksheet AnProj_line_WIinter in Concept Consulting Limited's model.

164 Vector, *Submission to the Commerce Commission on Revised Draft Decision on the Initial Default Price-Quality Path for Gas Pipeline Services*, 6 December 2012, p28.

165 Vector, *Submission to the Commerce Commission on Revised Draft Decision on the Initial Default Price-Quality Path for Gas Pipeline Services*, 6 December 2012, p28.

Information used for modelling gas transmission

E60 Table E5 summarises, for each component, the information we used to model the change in constant price revenue for gas transmission. For further discussion on the information we use, refer to the spreadsheet model we have published alongside this paper.

Table E5: Information for modelling revenue for transmission services

Item	Information used	Source
Forecast change in different quantities of gas for different demand types	Supplier-specific forecasts	Concept Consulting Limited's scenario-based study of gas demand and supply, and Commission calculations
Forecast change in quantity of gas multiplied by distance transported (MDL)	Supplier-specific historical trends	Commission calculations based on information from s 53ZD requests, Concept Consulting Limited's scenario-based study, and Commission calculations
Forecast change in reserved capacity (Vector Transmission)	Supplier-specific historical trends	Commission calculations based on information from s 53ZD requests
Proportion of revenue from different billed quantities	Supplier-specific information on different categories of line charge revenue	Commission calculations based on information from s 53ZD requests

Attachment F: Reasons for maximum revenue for transmission services

Purpose of this attachment

F1 This attachment explains our reasons for applying a revenue cap for transmission businesses.

Maximum revenue not maximum price

F2 We have specified a maximum revenue for each supplier of gas transmission services, rather than a maximum price. We have received no submissions arguing against a revenue cap for MDL.[166] The rest of this attachment therefore focuses on the reasons for applying a revenue cap to Vector Transmission.

Why maximum revenue makes more sense for Vector Transmission

F3 In our judgement, specifying a maximum revenue for Vector Transmission is more appropriate than specifying a maximum price because of difficulties forecasting changes in revenue. We consider that this outweighs the criteria set out in the input methodologies.

F4 Our reasons for not accepting MGUG's submissions on this topic remain the same as in our revised draft decision.[167]

Factors we have considered from the input methodologies

F5 In reaching our decision to apply a revenue cap to gas transmission services, we have taken into account the factors that are set out in the input methodologies. However, as explained in the input methodology reasons paper, the decision on the form of control is a matter of judgement for the Commission.[168]

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166 For more information on the reasons MDL is subject to a revenue cap, refer to: Commerce *Commission, Revised Draft Decision on the Initial Default Price-Quality Paths for Gas Pipeline Services*, 24 October 2012, paragraphs E5 and E6.

167 Commerce Commission, *Revised Draft Decision on the Initial Default Price-Quality Paths for Gas Pipeline Services*, 24 October 2012, p62.

168 Commerce Commission *Input Methodologies (EDBs & GPBs) Reasons Paper,* 22 December 2010, paragraph 8.3.18.

F6 All else being equal, the input methodologies state that a transmission business is better suited to a revenue cap if the business:

F6.1 operates under capacity reservation arrangements managed through common carriage rather than contract carriage; and

F6.2 lacks contractual flexibility to tailor non-standard pricing arrangements for individual customers.[169]

F7 Vector Transmission is operated through contract carriage and can use non-standard prices for individual customers and, therefore, its situation is not captured by these criteria. Nevertheless, the Commission's judgement is that a revenue cap is a better way to control its prices as evidenced by the difficulty of forecasting constant price revenue.

Difficulties in forecasting growth in revenue generated by transmission services

F8 To set a maximum average price, we require a forecast of revenue growth, which is difficult to forecast for Vector Transmission. This is because about half of its revenue relates to the quantity of gas transported, and the other half to reserved capacity. Neither of these can be forecast with a reasonable degree of accuracy. This is because:

F8.1 the billed quantities of gas transported on the Vector Transmission pipeline are too variable to be predicted with a reasonable degree of accuracy;[170] and

F8.2 it is not clear what the change in reserved capacity will be over the regulatory period.[171]

F9 Because we are not able to forecast these values reasonably accurately, allowed revenues may be significantly higher or lower under a weighted average price cap than required by the business. By contrast, the application of a revenue cap means that each supplier's revenues will reflect costs that are relatively straightforward to predict.

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169 Commerce Commission *Input Methodologies (EDBs & GPBs) Reasons Paper*, 22 December 2010, paragraph 8.3.15.

170 Both Vector and Concept Consulting Limited have demonstrated that quantities are highly variable, and very sensitive to prices. Refer to Vector, *Submission to the Commerce Commission on Revised Draft Decision on the Initial Default Price-Quality Path for Gas Pipeline Services*, 6 December 2012, p27; and Concept Consulting Group Limited, *Gas Supply and Demand Scenarios 2012 – 2027*, August 2012, and worksheet NI_Proj_Line in Concept Consulting Limited's model.

171 Refer to paragraph E59 for further discussion on the difficulty of forecasting the reserved capacity.

Attachment G: Timing assumptions used to reach our final decision

Purpose of this attachment

G1 This attachment explains the timing assumptions used to calculate present values when determining starting prices. These timing factors are used in the calculation of building block costs in Step Two of the approach used to set starting price or revenue, which is explained in Chapter 2.

Our assumptions improve the accuracy of our modelling

G2 Timing assumptions are required to recognise that suppliers incur and receive cash flows continuously throughout the year. These assumptions are reflected in the 'timing factors' we have included in the formula used to calculate the revenue each supplier should be allowed to recover.

G3 In our modelling we have assumed that, on average:

G3.1 operating expenditure is incurred in the middle of each year or part-year. We have assumed that operating expenditure is spread throughout the year or part-year at regular intervals. In present value terms, this is broadly equivalent to all costs being incurred in the middle of the year or part-year;

G3.2 capital expenditure is commissioned in the middle of each year or part-year. This reflects an assumption that assets are commissioned evenly throughout the year. We have made this assumption because any seasonal trends cannot be reliably forecast;

G3.3 tax costs are incurred in the middle of each year or part-year.[172] In reality suppliers should be able to pay tax at the provisional tax dates, which average out to later than mid-year. Mid-year timing is therefore favourable to suppliers because, on average, they can make payments later than the mid-year assumption;

G3.4 revenue is received on the 20th of the following month. Assuming that revenues are received in equal increments throughout the year is equivalent to assuming that, on average, all revenues are received somewhat later than mid-year; and

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[172] Where the modelling is for a part-year, tax costs are assumed to occur in the middle of the part-year period.

G3.5 other income is received in the middle of each year or part-year. We have made this assumption because we have no reliable way of forecasting seasonality.

G4 We have amended the input methodologies to apply a mid-year cash-flow timing assumption to the calculation of interest payments.[173] This addresses a concern raised by CEG (on behalf of Vector) on our previous position of having year-end timing for interest paid on debt, but mid-year timing for tax payments.[174]

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173 Refer to: Electricity and Gas Input Methodology Determination Amendments (No. 1) 2013 Decision No. [2013] NZCC 3.

174 Competition Economists Group, *Default Price-Quality Path for Gas Pipelines*, November 2012, p12. In the same report CEG also raised an issue with depreciation. This was addressed in the input methodology amendment paper – Commerce Commission, *Specification and Amendment of Input Methodologies as Applicable to Default Price-Quality Paths*, 28 September 2012.

Attachment H: Additional allowances for GasNet and Powerco

Purpose of this attachment

H1 This attachment provides further information about why we have provided an additional allowance of $16,000 for GasNet and $64,000 for Powerco under the first default price-quality path.

How we calculate the potential additional allowance

H2 Before we explain why an additional allowance is appropriate for two suppliers, we begin by setting out a framework in which an additional allowance could be calculated. This framework is based on assessing the two impacts introduced towards the end of Chapter 5.

An additional allowance has two impacts on consumers

H3 As noted in Chapter 5, an additional allowance for suppliers would have two impacts on consumers.

H3.1 An additional allowance for the supplier would reduce the probability that a customised price-quality path will be proposed, so the expected costs to consumers of a proposal would be reduced.

H3.2 If the supplier does not propose a customised price-quality path, then the additional allowance for the supplier would mean that consumers face higher prices under the default price-quality path.

H4 Where the first impact is greater than the second impact, an upward adjustment to prices allowed under the default price-quality path is, in principle, cost-effective for both suppliers and consumers.

H5 To estimate what the appropriate adjustment would be, we have set up a simple mathematical model. This model measures the impacts with reference to:

H5.1 the expected costs of a customised price-quality path, which are adjusted to reflect the probability of a proposal; and

H5.2 the expected additional costs to consumers under the default price-quality path, if an additional allowance is included.

H6 By minimising the total cost to consumers in respect of an additional allowance for suppliers, we can find under what circumstances an adjustment is beneficial to consumers and what the optimal adjustment would be.

Impact on the probability of a proposal depends on the margin of error in our forecasts

H7 The margin of error in our forecasts determines the likely impact that introducing an additional allowance would have on the probability that the supplier will make a proposal. For example:

H7.1 if our forecast has a relatively large margin of error, then an additional allowance of $1m (say) would be unlikely to have much of an impact on the likelihood that a supplier will make a customised proposal; and

H7.2 if our forecast has a relatively small margin of error, then an additional allowance of $1m (say) might significantly reduce the likelihood that the supplier will make a customised proposal.

H8 An additional allowance would be unlikely to benefit consumers in the first of these two examples, whereas in the second, an additional allowance may be beneficial.

Simplifications help to understand reality—The impact of relaxing them matters

H9 Our model relies on some simplifying assumptions to help us understand the realities of when consumers will benefit from an additional allowance. However, we recognise that simplifying assumptions mean that the model will not reflect reality perfectly. We therefore consider the impact of relaxing our assumptions after setting out the simplified framework upfront.

The probability of a supplier proposing a customised price-quality path

H10 We link the probability of suppliers proposing a customised price-quality path to the likelihood of them accepting or rejecting the total net revenue of a default price-quality path. In other words, where revenue is less than a particular amount, we expect that a supplier will propose a customised price-quality path.

H11 Revenue greater or less than the supplier requires before they propose a customised price-quality path can be analysed as a margin of error.[175] Our first simplification is that the margin of error is uniformly distributed. This means all possible actual outcomes are equally likely to occur.

[175] We use the word error in its statistical sense.

H12 If our forecasting is unbiased, then the margin of error will have an equal spread in either direction. This means that, on average, a supplier's default price-quality path would be accepted, and the probability any individual supplier will propose a customised price-quality path is 0.5; that is, half of suppliers will propose a customised price-quality path. Later, we consider the impact of relaxing this assumption with a more realistic view.

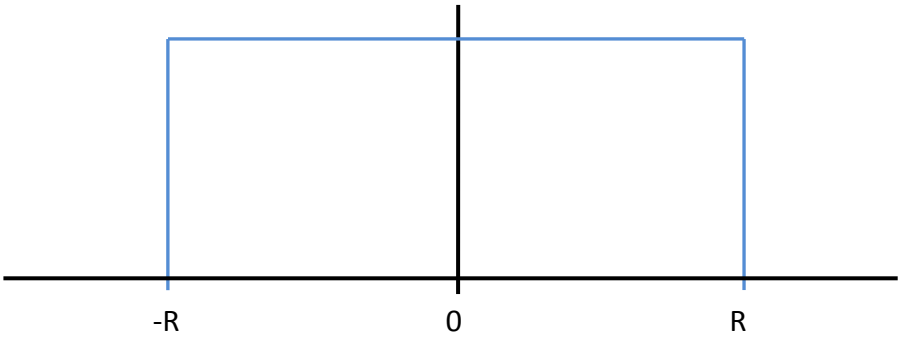
H13 These simplifying assumptions can be expressed in terms of a margin of error, R.

H13.1 Where R is negative, a supplier will propose a customised price-quality path.

H13.2 Where R is positive a supplier will not propose a customised price-quality path, and the supplier will be likely to be receiving revenue under the default price-quality path that exceeds their requirements.

H14 R is the spread from no error (the point at which revenue is just sufficient so that a supplier will accept the default price-quality path). These assumptions are illustrated in the probability density function in Figure H1.

Figure H1: Uniform probability density function for error



Cumulative probability of a supplier proposing a customised price-quality path

H15 We can express the probability of a supplier proposing a customised price-quality path in terms of cumulative probability.[176] This tells us what the overall probability of a supplier proposing a customised price-quality path is, and how this overall probability may change if we include an additional allowance when we set the default price-quality path.

[176] The difference between a probability and a cumulative probability is that a probability gives the chances of a specific outcome occurring, eg, that the default price-quality path is precisely correct, while a

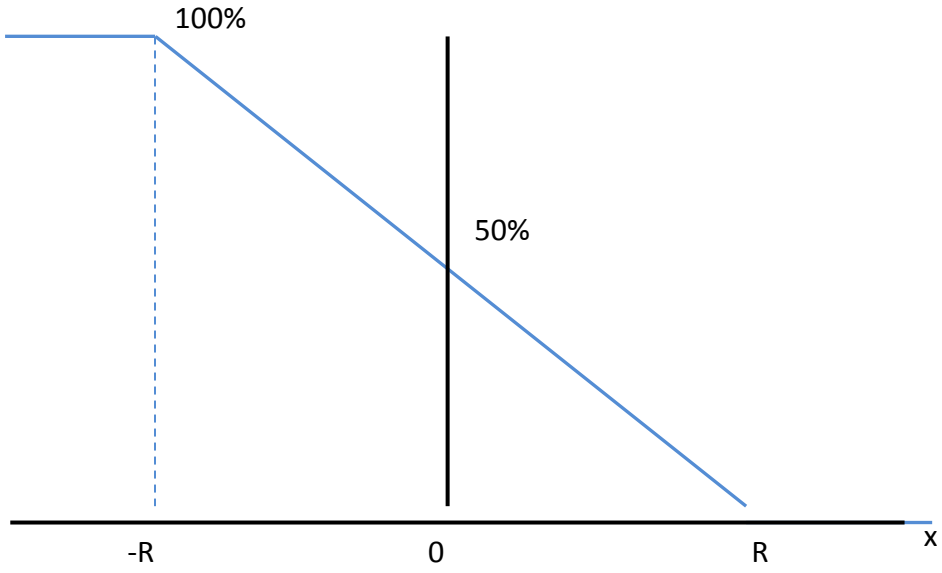
H16 The cumulative probability function for this uniform distribution is:[177]

Equation 1

$$F(x) = \frac{-x + R}{2.R}$$

H17 The additional allowance is the term 'x' and we can see that, where x is set at zero and R is symmetric, the probability of a customised price-quality path is 0.5. This relationship is illustrated in Figure H2 below.

Figure H2: Cumulative probability of a supplier proposing a customised price-quality path with respect to an additional allowance 'x'



cumulative probability gives the chances of an outcome at or less of a less specific outcome occurring, eg, that the default price-quality path is below the value which would prompt acceptance. For our purposes it is the cumulative probability that is important.

177 This is the cumulative probability function for a simplified uniform distribution given our expected value of zero and symmetry in the margin of error.

H18 If the additional allowance to the default price-quality path is set at the margin of error (R) then there is no possibility of a supplier proposing a customised price-quality path. Total revenue will always be at least sufficient, so at this point F(x) = 0. Equally, where x is set at minus R, there is no probability of the default price-quality path being accepted: total revenue will always be insufficient, so the probability of a customised price-quality path is 1, F(x) =1.[178]

H19 This has an immediate implication that any optimal additional allowance (x) cannot be greater than the margin of error (R).There will be no case in which providing firms more revenue than they need under all probabilities that will be beneficial to consumers.

Modelling an optimal adjustment which benefits consumers

H20 We need to calculate an optimal value for x which minimises the total of the following costs.

H20.1 The expected cost of a customised price-quality path to consumers: if an additional allowance is included when we set the default price-quality path, but it fails to prevent the supplier from making a customised proposal, then the size of the additional allowance is irrelevant. This is because the cost of a customised price-quality path is incurred instead.

H20.2 The expected cost of the additional allowance to consumers – the additional allowance would only affect consumers if the supplier accepts the default price-quality path.

H21 The expected cost of a customised price-quality path to consumers can be denoted by:

$$E(cost\ of\ a\ CPP) = F(x) \cdot C$$

H22 Here C denotes the cost of a customised price-quality path and F(x) is the cumulative probability function shown in equation 1. It states that the expected cost of a proposal is the probability of a customised price-quality path being proposed times the cost of a proposal.

H23 The expected cost of the additional allowance to consumers can be denoted by:

$$E(Additional\ Cost\ of\ a\ DPP\ from\ an\ additional\ allowance) = (1 - F(x)) \cdot x$$

[178] Another implication of this is that the adjustment x enters the cumulative probability function as a negative value.

H24 As our cumulative probability function is in respect of a proposal occurring, one minus this value gives the probability of a default price-quality path being accepted. This probability times the value of the adjustment (x) is the expected additional cost of a default price-quality path to consumers from an additional allowance.

H25 We therefore want to minimise the expected cost:

Equation 2

$$MinE(cost) = F(x) \cdot C + (1 - F(x)) \cdot x$$

H26 Substituting Equation 1 into Equation 2 gives:

$$MinE(cost) = \frac{-x + R}{2 \cdot R} \cdot C + \left(1 - \frac{-x + R}{2 \cdot R}\right) \cdot x$$

H27 We can expand the right-hand terms to:

$$MinE(cost) = \frac{-x \cdot C}{2 \cdot R} + \frac{C}{2} + x + \frac{x^2}{2 \cdot R} - \frac{x}{2}$$

H28 To find the value of x which minimises this equation we differentiate with respect to x and set the equation equal to zero to find the turning point.

$$\frac{\partial E(cost)}{\partial x} = -\frac{C}{2 \cdot R} + 1 + \frac{2x}{2 \cdot R} - \frac{1}{2}$$

H29 Setting this derivative to zero and simplifying gives:

$$-\frac{C}{2 \cdot R} + \frac{1}{2} + \frac{x}{R} = 0$$

$$\frac{x}{R} = \frac{C}{2 \cdot R} - \frac{1}{2}$$

Equation 3

$$x = \frac{C - R}{2}$$

H30 Equation 3 gives us the optimal value of an additional allowance when the default price-quality path is set, given the assumptions we laid out earlier, which is subject to the additional allowance always being smaller than R. This is because the additional allowance would never need to be larger than the margin of error in our forecasts.

The implications of the results

H31 Equation 3 has two main implications:

H31.1 when the margin of error is less than the cost of a customised price-quality path proposal, an increase in the default price-quality path by an additional allowance is beneficial to consumers; or

H31.2 when the margin of error is greater than the cost of a customised price-quality path proposal, a decrease in the default price-quality path would be beneficial to consumers.

H32 The intuition behind this is that we have essentially modelled costs and benefits to consumers of setting prices quite low, which risks a supplier making a customised price-quality path proposal, relative to setting prices quite high, which risks suppliers earning excessive profits. Importantly:

H32.1 where prices are too low, suppliers have a fallback position of a customised price-quality path; or

H32.2 if prices are set too high, consumers have no such fallback position.

H33 Therefore, on an intuitive level, if the potential for too much revenue is large relative to the cost of a proposal - that is, if the margin of error in our forecasts is quite large - then consumers would be better off if the supplier proposed a customised price-quality path. This is because costs could then be assessed more accurately.

H34 Nevertheless, we did not apply any negative allowances, and so have set the floor for our calculations at zero.

Applying this model to suppliers for the first default price-quality path

H35 We have applied this model to the data we have received from suppliers to calculate the potential additional allowance.

We have assessed the margin of error with reference to the supplier's own forecasts

H36 One way we can assess the margin of error in our forecasts is by cross-checking our results against the supplier's own forecast. In particular, we can compare:

H36.1 the results of modelling each supplier's revenue requirement using our forecasts; and

H36.2 the results of modelling each supplier's revenue requirement using the supplier's own information.

H37 The difference between these two figures, assessed in present value terms over the regulatory period, provides the margin of error referred to in the remainder of this attachment.[179]

Our estimates of the margin of error for each supplier

H38 Table H1: shows the indicative margin of error that we have estimated for each supplier.

Table H1: Estimated margin of error in forecasts ($m)

Supplier	Commission forecast	Supplier forecast	Margin of error
GasNet	16.7	16.7	0.0
Powerco	179.6	182.0	2.4
Vector Distribution	260.3	273.8	13.4
Vector Transmission	328.3	377.8	49.5
MDL	149.6	167.1	17.5

H39 Verification or evaluation processes have not been applied to the supplier's forecast, so we are unable to assess whether the margin of error for each supplier is the result of inaccuracies in our modelling, or inaccuracies in the supplier's forecasts. Rather, the results indicate how far our modelling could lie from the true value.

The implications of a negative margin of error

H40 In the case of a negative margin of error, there is no reason to include an additional allowance. This is because the supplier's forecast indicates that the supplier is unlikely to propose a customised price-quality path, irrespective of the accuracy of our forecast.

The implications of large margins of error

H41 The arguments in favour of introducing an additional allowance are also weak in the case of a large margin of error. For example, even assuming that a relatively complex customised price-quality path proposal costs $2.5m for Vector Transmission or MDL, the potential savings to consumers (of $2.5m) need to be laid against the potential cost to consumers of avoiding a proposal, which in this case is over $17m.[180]

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[179] In practice, this margin of error may underestimate the true margin of error, unless the supplier's forecast represents the true upper bound on the feasible range of forecasts.

[180] $2.5m is our current view on the upper bound on the costs of a customised price-quality path, and is based on a relatively complex customised price-quality path proposal being made, eg, a proposal that is

H42 As noted above, our model indicates we should not expect consumers to benefit where the margin of error is greater than the costs of a proposal.

The implications of the smallest error margins

H43 In the case of the smallest margins of error, we have used the formula derived in paragraphs H20 to H30 above, to find that an additional allowance of $16,000 would be appropriate for GasNet, and an additional allowance of $64,000 would be appropriate for Powerco.

H44 The upper bound on the additional allowance was calculated by making the following simplifying assumptions:

H44.1 the upper bound on the cost of a customised price-quality path for GasNet would be around $1.5m, and $2.5m for Powerco; and

H44.2 the probability of either supplier making a proposal for a customised price-quality path is 50%, when in practice the probability is likely to be far lower.

H45 For GasNet and Powerco, we are satisfied that the additional allowance required to avoid the prospect of a customised price-quality path may promote the long-term benefit of their consumers. Consequently, we have included an additional allowance for both suppliers.

The impact of making more realistic assumptions about the probability of a proposal

H46 If we made a more realistic assumption about the probability of a customised price-quality path proposal, there is a greater constraint on the margin of error under which an additional allowance is beneficial to consumers. If instead of having a symmetric distribution around zero error, we could assume that the probability of proposing a customised price-quality path is lower than 0.5.

H47 The mathematics for this is very similar. We can model the shift in probabilities by a value β; for example, if we wanted to shift the probabilities by 25% we can move these by adding $\beta = \frac{R}{2}$. Then our 'optimal' equation (equation 3) becomes $x = \frac{C-R+\beta}{2}$. This also implies the additional allowance cannot be greater than $\frac{R}{2}$, as any value above this point cannot reduce the probability of a proposal any further.

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made in response to a catastrophic event, like an earthquake, and which may involve a significant amount of consultancy work to identify appropriate quality standards. In practice, the costs of a customised price-quality path proposal are likely to be far lower if the proposal is motivated by revenue being too low under the default price-quality path.

H48 For GasNet and Powerco, this would change the additional allowance by only a relatively minor amount. Given that we do not know whether a probability of 25% is more realistic than 50%, we have not applied this methodology.

The impact of including indirect costs in the analysis

H49 We received a submission on our revised draft decision from GasNet that our analysis underestimated the costs of a customised price-quality path.[181] GasNet argued that our analysis failed to take into account of certain costs incurred by an applicant for a customised price-quality path.[182]

H50 However, we do not consider that it would be appropriate to include an additional allowance on the basis of an inflated assumed cost of a customised price-quality path proposal. In our view, it would be wrong to classify most of the planning costs involved in preparing a customised proposal as additional costs, given the effort that already goes into maintaining and operating a gas pipeline network.

H51 We have therefore only taken into account the costs of a proposal that can be recovered from consumers under the input methodologies.[183] These costs are determined by the input methodologies applying to customised price-quality path proposals.[184] Our analysis therefore captures the costs and benefits of an additional allowance to consumers.

Varying the probability distribution

H52 Finally, we considered whether our results would change if we varied the assumed distribution of the margin of error. In the absence of any information about the shape of the probability distribution function, we assumed that a uniform distribution is appropriate. However, it could be that the probability of a large error is lower than the probability of a small error.

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181 GasNet, *Submission on Revised Draft Decision on the Initial Default Price-Quality Paths for Gas Pipeline Services*, 7 December 2012, p8.

182 This is similar to submissions we received in response to our paper on the reset of the default price-quality path for electricity distribution businesses.

183 As specified in clauses 3.1.3(1)(c)-(g) of the respective input methodologies.

184 Commerce Comission, *Input Methodologies (Electricity Distribution Businesses and Gas Pipeline Businesses*) *Reasons Paper,* 22 December 2010.

H53 A triangular distribution is an obvious choice in this context where the precise distribution is unknown. However, we do not believe this assumption would lead us to a different conclusion about the appropriate margin for error for each supplier. In our view, the accuracy of our modelling primarily relies on the margin of error, R, representing the true margin of error. And, in light of submissions, we consider our method of calculating the margin of error is more likely to underestimate the true margin of error than overestimate it.

Attachment I: Information gathered from suppliers

Purpose of this attachment

I1 This attachment sets out the information we requested from suppliers and, where necessary, the changes that we made to the information for the purposes of our modelling.

Summary of information requested from suppliers

I2 Throughout the process for setting the first default price-quality path we have issued several information gathering requests to suppliers.[185] Table I1 sets out a summary of the information that we requested from suppliers.

Table I1: Summary of information requested from suppliers

Information notice	Summary of requested information
28 July 2011	Financial information for 2010 (consistent with input methodologies), including: • Income and expense information • Operating expenditure allocation • Regulatory asset base information, including proposed asset value adjustments • Regulatory asset base allocation • Regulatory tax information • Historic capital expenditure information • Term credit spread differential information

[185] We issued information requests under s 53ZD of the Act to suppliers. Copies of these information requests and corresponding issues registers are available at http://www.comcom.govt.nz/initial-default-price-quality-path/

Information notice	Summary of requested information
22 June 2012	Financial information for 2011 (consistent with input methodologies), including: • Income and expense information • Operating expenditure allocation • Regulatory asset base information • Commissioned and disposed asset information • Regulatory asset base allocation • Regulatory tax information • Forecast expenditure (2012 to 2017) • Revenue information (2008 to 2011, detailed composition) • Other regulated income (2008 to 2011) • Insurance information (2009 to 2017) • Weighted average prices (1 January 2008 to 30 September 2012)
17 December 2012	Financial information for 2011 (consistent with input methodologies), including: • Regulatory asset base information, including proposed asset value adjustments • Insurance information (2011 to 2018) • Weighted average prices (1 October 2012 to 28 February 2013) • Balancing gas (Transmission only) • Compressor fuel (Transmission only) • Unaccounted for gas (Transmission only) • Compliance costs

I3 For our revised draft decision, we relied on information that was provided in response to the July 2011 and June 2012 information requests. The changes that we made to that information can be found in Attachment K of our revised draft decision.

Information gathering request issued in December 2012

I4 In December 2012, we issued an information gathering request to obtain the information required to reach our final decision. For example, the December 2012 information request required suppliers to:

I4.1 update the information on the regulatory asset base to restate the costs of transactions with related parties, because the treatment of related party transactions had been amended in the input methodologies for information disclosure regulation;[186] and

I4.2 submit additional information on the changes in their weighted average price for the period 1 October 2012 to 28 February 2013, because the June 2012 information gathering request only covered the period up to 30 September 2012.[187]

I5 Table I2 summarises the changes that we made as a result of the information provided by suppliers in response to this information gathering request.

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186 Electricity and Gas Input Methodology Determination Amendments (No. 1) 2012 Decision No. [2012] NZCC 18.

187 The provision for claw-back under s 55F(2) of the Act relates to the period 1 January 2008 to the date the determination is made.

Table I2: Changes we made to information previously disclosed by suppliers

Supplier	Type of information	What we have changed	Reason for change
Vector Transmission	Operating expenditure in the base year	Removed amount for unaccounted for gas	Unaccounted for gas is treated as a pass-through cost so must be removed from operating expenditure to prevent double counting
Vector Distribution and Transmission	Operating expenditure in the base year	Removed amount for the cost of appeals	As explained in paragraphs C10 to C13
Powerco	Operating expenditure in the base year	Removed amount for the cost of appeals	As explained in paragraphs C10 to C13
MDL	Commissioned Assets	Reverted to the amount used in the revised draft decision	In the revised draft decision we noted "Sum of closing RAB values of commissioned assets for the disclosure year 2012 ($000) of 299,765 is not consistent with Schedules A4 and A5 Commissioned Assets ($000) of 67." This inconsistency was not corrected in the 17 December 2012 s53ZD workbook
GasNet	Weighted Average Remaining Life in the year ending 2010	Changed the Weighted Average Remaining Life to 27 for the year ending 2010	The June 2012 disclosure indicated 26 years as at 30 June 2011, but the 2011 disclosure indicated 32 years as at 30 June 2010. GasNet later clarified that the correct value was 27 years
Powerco	Number of Installation Control Points (ICPs)	Pro-rated the certified number of ICPs by the breakdown In the revised draft decision	Powerco resubmitted certified information on the total number of ICPs, as requested in the December 2012 information gathering notice

Independent review of proposed asset value adjustments

I6 Nel Consulting Limited was engaged as an independent engineer to review the adjustments to asset values that were proposed by GasNet, Maui, and Vector Transmission and Distribution. We have released the report by Nel Consulting Limited alongside this paper.[188]

I7 We have accepted the recommendation by Nel Consulting Limited to allow the majority of the proposed adjustments, and disallow a small proportion of the adjustments proposed by GasNet and Vector. In particular, we disallowed proposed adjustments for:

I7.1 GasNet of $0.038m relating to optimisation and economic value tests;

I7.2 Vector Distribution of $0.642m relating to internally generated intangible assets;[189] and

I7.3 Vector Transmission of $1.972m concerning the valuation of 140 land parcels.[190]

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188 Nel Consulting Limited, *The Review of the Independent Engineers' Reports on the Asset Adjustment Process of Gas Pipeline Businesses, Final Report*, February 2013.

189 We did, however, accept adjustments of $0.8m pertaining to other intangible assets that were independently certified.

190 We did accept adjustments of $3.1m pertaining to these 140 land parcels that were independently certified.

Attachment J: Summary of changes since our revised draft decision

Purpose of this attachment

J1 This attachment shows the key differences between this final decision, and our revised draft decision. It begins with an analysis of the outputs of our modelling before providing a breakdown of the changes in the key inputs.

Minor changes to price or revenue limits

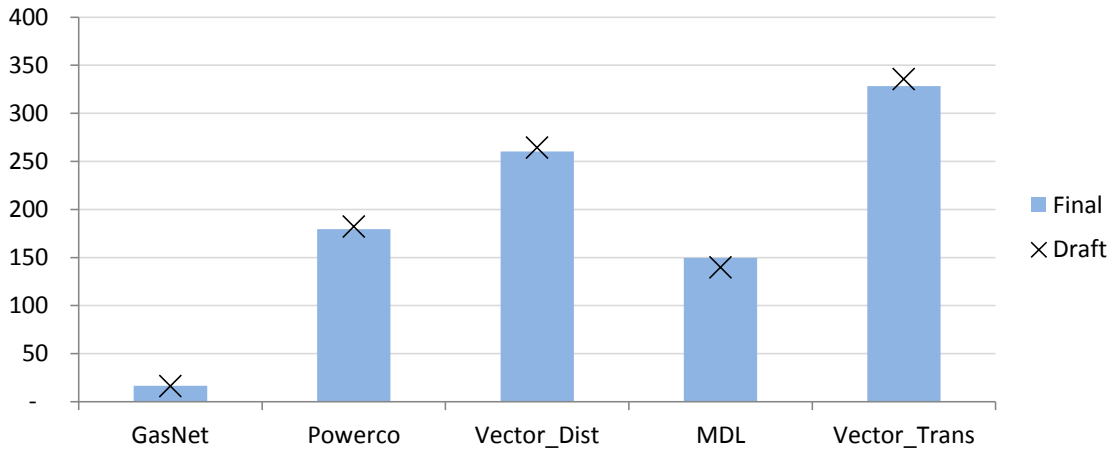
J2 Overall, there are only minor changes to the price path as a result of the changes implemented between the revised draft decision and the final decision. This section sets out the changes in the amount suppliers are expected to earn in the year ending 2014 before pass-through costs and recoverable costs are taken into account.

The amount allowed over the regulatory period is largely unchanged

J3 Figure J1 shows the difference in the amount that we expect suppliers to earn over the regulatory period relative to the amount we expected in our revised draft decision.

Figure J1: Total allowable revenue over the regulatory period

(Final decision and revised draft decision, 2011 present value $m)



J4 For distribution businesses there is little difference between the final and the revised draft decision. However, there are some changes for both transmission businesses.

J4.1 MDL's total allowable revenue over the regulatory period has increased by $10.0m, primarily because of increases to MDL's allowance for operating expenditure for insurance costs and compressor fuel.

J4.2 Vector Transmission's total allowable revenue over the regulatory period has decreased by $7.3m, largely as a result of applying a more appropriate measure of inflation, and also due to reductions in the allowance for operating expenditure to exclude the costs of unaccounted for gas.[191]

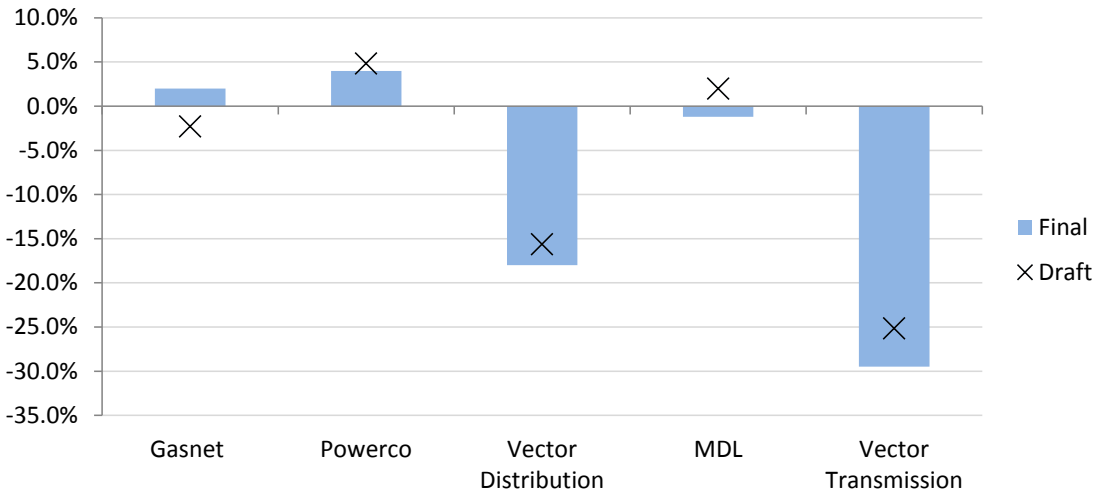
J5 Later on in this chapter we explain these changes by setting out the revisions that we made to our inputs.

More precise calculation of price adjustments

J6 Figure J2 shows the percentage changes we have estimated for the first assessment period for both the final and draft decision.

Figure J2: Price adjustments in the first assessment period

(Comparison of the final and revised draft decision)



191 Previously, the measure of inflation that we used to roll forward asset values did not exclude the impact of the increase in Goods and Services Tax. However, this impact is excluded from the measure of inflation that is used to roll forward asset values under information disclosure regulation.

J7 There have been changes in the way we calculated the baseline against which we assessed each supplier's price adjustments between the revised draft decision and this final decision. That is why the difference between the revised draft decision and the final decision appear greater in Figure J2 than they do in Figure J1.

J8 Since the revised draft decision we have improved our estimate of the revenue suppliers would have earned if there was no default price-quality path. The key changes to this 'counterfactual' are the changes to our forecasts of revenue growth for each supplier, where we have now:

J8.1 used more accurate forecasts of revenue growth in constant prices (which only affects distribution businesses), and

J8.2 corrected errors in our measures of inflation (which affects distribution and transmission businesses).

J9 In addition, we changed our assumption about MDL's existing pricing approach. Previously, we had assumed MDL is pricing in line with a price cap. However, we now assume that MDL is currently pricing in line with a revenue cap. In our view, our updated assumption is more consistent with the Maui Pipeline Operating Code. This assumption has significantly reduced our forecast of MDL's revenue if prices were not adjusted.

Changes to key inputs since our revised draft decision

J10 This section looks at changes to the key inputs, consisting of:

J10.1 changes to the allowance for capital expenditure;

J10.2 changes to the allowance for operating expenditure;

J10.3 changes to our forecast of revenue growth in constant prices; and

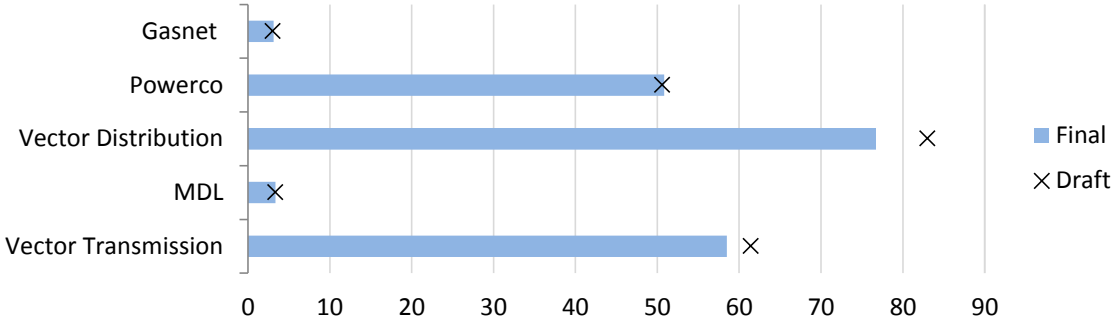
J10.4 changes to other inputs.

Changes to our capital expenditure allowances

J11 Figure J3 compares our allowance for capital expenditure between the revised draft decision and the final decision.

Figure J3: Changes in our allowances for capital expenditure

(Final and revised draft decision, total of 2014 to 2017 in 2011 constant prices, $000)



J12 The most significant differences are the result of a change in our allowance for non-network investments. In this final decision, we have allowed non-network investments up to a 20% increase on historic levels. In our revised draft decision we set non-network investment equal to supplier's historic levels.

J13 The change to the allowance for non-network investments has brought all suppliers closer to their forecasts. It increased the allowance for GasNet and Powerco. Conversely, it reduced the allowance for Vector Distribution and Vector Transmission, because their forecasts for non-network investments are below their historic levels.

J14 We have also updated the data we used by:

J14.1 applying the most recent data from suppliers on the value of their commissioned assets; and

J14.2 using a more up to date source of input price data, both for forecast and actual movements in input prices.

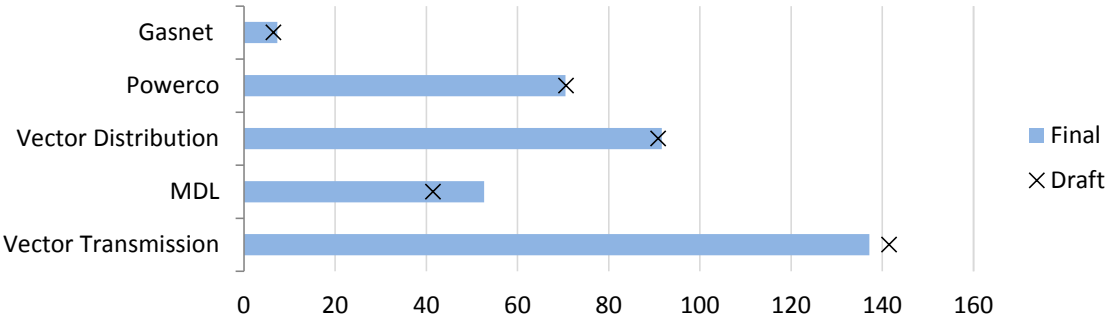
J15 See Attachment B for more detail on the reasons for these changes.

Changes to our operating expenditure allowances

J16 Figure J4 compares the changes in our allowance for operating expenditure between the revised draft decision and the final decision.

Figure J4: Changes in our allowances for operating expenditure

(Final and revised draft decision, total of 2014 to 2017 in 2011 constant prices, $000)



J17 The allowances for operating expenditure have primarily changed because we:

J17.1 adopted Castalia's estimate of the impact of changes in the scale of each supplier's network; and

J17.2 amended or included additional factors not previously captured in our forecast, eg, costs of compressor fuel.

J18 We have also relied Castalia's estimation of the impact of scale, which is larger than the estimate we used for the revised draft decision. This increased the allowance for operating expenditure for all distribution businesses. This change has had no effect on transmission businesses because we have assumed scale has no impact on their operating expenditure.

J19 The amended or additional factors that we included in our model are:

J19.1 amended figures for the base year to exclude unaccounted for gas and the costs of appeals;

J19.2 updated insurance information for some suppliers;

J19.3 an allowance to GasNet for certain compliance costs; and

J19.4 an allowance for MDL's compressor fuel costs.

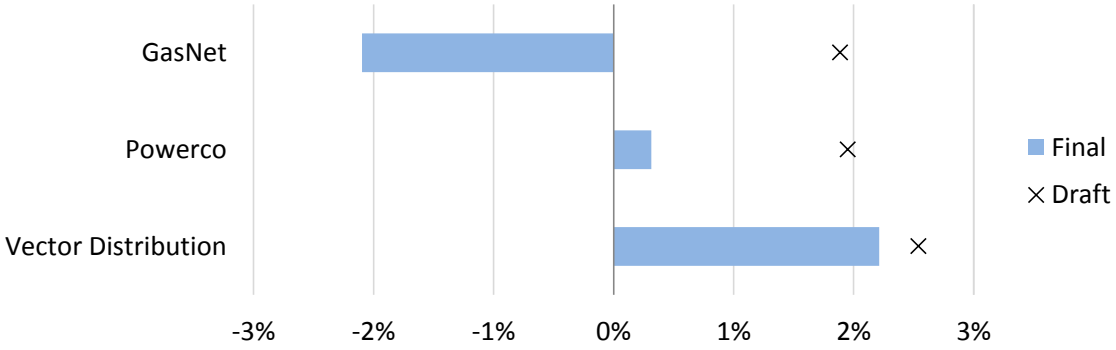
J20 Vector Transmission's allowance for operating expenditure has reduced since the revised draft decision because of changes in its base year operating expenditure. Since the revised draft decision we have excluded $768,000 from its base year to remove the effect of unaccounted for gas. We removed a further $108,278 to exclude the costs of appeals. The reasons for removing these factors are discussed in Attachment C.

Changes to our constant price revenue growth forecasts

J21 Figure J5 compares our forecasts of constant price revenue growth between the revised draft decision and the final decision.

Figure J5: Changes in our constant price revenue growth forecasts

(Final and revised draft decision, total of 2014 to 2017)



J22 For our decision we have used a different gas quantity forecast than the revised draft decision. In the revised draft decision we relied just on Concept Consulting Limited's moderate scenario. In the final decision we use the arithmetic average of forecasts of:

J22.1 each suppliers' four year historic trend in the quantity of gas delivered; and

J22.2 the quantity of gas from Concept Consulting Limited's moderate gas supply scenario.

J23 Our approach to modelling constant price revenue for gas transmission is unchanged from the revised draft.

Updates to other inputs

J24 Since the revised draft decision we have applied the most recent WACC of 7.44%.[192] This is a decrease compared to the WACC used in the draft decision of 7.53%. The impact of this change ranges from a $741,000 reduction in Vector Distribution's expected revenue over the regulatory period, to a reduction of $29,000 for GasNet.

J25 The other key changes that we have made are:

J25.1 applying revised figures for inflation;[193]

J25.2 applying updated additional allowance figures for Powerco and GasNet;

J25.3 updating data from an information gathering request on the opening regulatory asset base, depreciation and disposed assets;[194] and

J25.4 updating data on the weighted average age of GasNet's assets.

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192 Cost of capital determination for default price-quality paths for suppliers of gas distribution and gas transmission services, and customised price-quality path proposals made by Vector Limited and GasNet Limited [2012] NZCC 38

193 Refer to footnote 191.

194 We requested this information under s 53ZD of the Act on 17 December 2012. A copy of this information request is available at http://www.comcom.govt.nz/initial-default-price-quality-path/.